When Roll-up Breaks: Serial Private Equity Acquisitions in the Hospital Industry *

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Abstract

This paper challenges the view that private equity roll-up strategies persistently create value across sequential acquisitions. In hospital roll-ups, while platforms achieve sustained gains in operating performance, subsequent add-ons fail to replicate this success. Decomposing this add-on stagnation reveals that financing source determines the outcome. Add-ons funded by new external debt preserve profitability, consistent with lender discipline. Conversely, internally financed add-ons bypass this screening mechanism. While stable on average, this stagnation masks a critical agency failure: value destruction is concentrated entirely in high-tangibility targets. Without the discipline of an external lender, asset tangibility does not secure value but instead facilitates empire building, enabling managers to rationalize the acquisition of asset-heavy, inefficient targets. Ultimately, the roll-up structure fails to contain agency costs, as internal capital markets allow managers to exploit collateral capacity to pursue size over value.

Keywords: Private Equity; Roll-up; Hospital Acquisitions; Lender Discipline; Internal Capital Markets; Financial Contracting.

JEL Classifications: G23, G32, G34, I11

*I am grateful to David Robinson (chair), Manuel Adelino, John Graham, Ryan McDevitt, and Melanie Wallskog for their invaluable guidance. I thank Michael Ewens, Janet Gao, Young Soo Jang (discussant), Yongseok Kim (discussant), Jared Smith, and participants at the NBER Summer Institute, RCF-ECGI Conference, WEFI PhD Conference for helpful comments. I thank Tong Liu for providing CPOM data. All remaining errors are my own. First version: September 2024.

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1 Introduction

The rapid expansion of private equity (PE) into the U.S. healthcare sector has reignited a fundamental debate in corporate finance: does private equity create economic value, or does it merely extract rents from stakeholders? This normative dichotomy often sows confusion. On one side, Jensen (1986) argues that the PE ownership model resolves the agency costs of public corporations, aligning managerial incentives to maximize efficiency. On the other side, critics akin to Shleifer and Summers (1988) argue that PE gains often come at the expense of other stakeholders. This paper argues that PE is not a monolithic force that strictly creates or destroys value. Instead, it is a mechanism whose outcomes depend on the specific financing structures that govern investment decisions. By focusing on the hospital industry, I document how the removal of debt discipline within PE portfolios facilitates the re-emergence of agency costs.

Private equity roll-up strategies have reshaped this sector by consolidating fragmented providers into large, integrated platforms. While the strategic rationale emphasizes economies of scale and operational synergies, the empirical reality reveals a stark divergence in performance. The initial "platform" acquisition typically succeeds, benefiting from immediate operational improvements and financial optimization. Yet the subsequent "add-on" acquisitions that drive the roll-up strategy frequently fail to generate operational value. This discrepancy presents a puzzle. If the platform model is sound, why does the replication of that model across add-ons falter? This paper argues that the answer lies in the financing structure, which governs the selection and execution of the operational strategy.

I investigate this puzzle by decomposing PE roll-ups into distinct financing modes based on their capital source rather than merely their timing. In Mode 1, or fund-financed acquisitions, the private equity firm finances the target directly by calling capital from limited partners (LP equity) and securing new, deal-specific external debt. Because these transactions require fresh underwriting, they are subject to direct lender scrutiny. In contrast, Mode 2, or platform-financed acquisitions, rely on the platform company's internal capacity, typically utilizing existing credit facilities or operating cash flows. As a result, these deals bypass deal-specific screening by external debt markets. I interpret the divergence in these financing structures through the lens of Axelson et al. (2009), who argue that the governance value of the PE model relies heavily on the discipline of deal-by-deal debt financing. In their framework, lenders act as a screening mechanism by funding only credible projects. When this external constraint is removed, as is the case in internally financed add-ons, managers retain the discretion to fund marginal or negative-NPV projects. This discretion can lead to overinvestment and performance deterioration. Consequently, this framework suggests a sharp empirical prediction:

agency-driven value destruction should be concentrated in Mode 2 deals, where the governance role of external debt is absent.

The U.S. hospital industry offers a distinct setting to isolate these agency mechanisms. Unlike unregulated consumer markets where firms typically possess broader discretion to adjust prices, hospitals operate under a structural revenue constraint: more than half of all discharges are covered by Medicare and Medicaid, where reimbursement rates are administratively fixed. While hospitals retain some pricing power with commercial insurers, this substantial fixed-revenue base limits the extent to which market power alone can compensate for operational inefficiencies. Consequently, this setting provides a cleaner test of governance: effectively, the rigid pricing structure makes it harder for managers to mask the consequences of empire building or operational stagnation. Using a sample of hospital acquisitions and detailed cost-report data from the Centers for Medicare and Medicaid Services (CMS), I distinguish between the initial platform creation and subsequent add-on types. Identifying the causal effect of these financing structures requires addressing the endogeneity of target selection, as PE firms might acquire hospitals based on unobservable trends. To address this challenge, I employ a rigorous matching strategy based on pre-acquisition size, profitability, and location. This ensures that the control group reflects the counterfactual trajectory of similar hospitals. I supplement this with an instrumental variables (IV) strategy that exploits state-level variation in Corporate Practice of Medicine (CPOM) laws to isolate exogenous variation in PE entry (Liu, 2022).

The analysis begins by establishing the structural logic of the roll-up through target selection. I find that PE sponsors, or general partners (GPs), systematically select platform targets with low leverage and high operating margins. This strategy creates a "financial anchor" with significant unused debt capacity. In contrast, decomposing the add-on strategy reveals a sharp divergence in the intensity of target selection. Mode 1 targets, which require external lender approval, exhibit a relatively muted profile with only marginal evidence of financial distress. However, Mode 2 (internally financed) targets drive the aggressive selection logic: they are systematically selected for high leverage and high operating margins, despite their significantly low return on assets (ROA). This profile identifies Mode 2 targets as operationally viable yet financially constrained turnarounds, where strong core cash flows are obscured by debt or overhead. This staged selection sets the conditions for the subsequent divergence in performance: the platform is engineered to bear the debt capacity that funds the acquisition of these capital-constrained add-ons, particularly those that exhibit risk profiles less likely to clear external lending hurdles.

Following this selection, the results confirm a sharp performance divergence. Platform hospitals exhibit robust operational value creation. They benefit from an immediate post-acquisition financing advantage that anchors the roll-up, followed by sustained improvements

in profitability. However, this success does not scale to add-on acquisitions, which show no significant profitability gains on average. To explain this discrepancy, I decompose the add-on results by financing mode. Mode 1 (Fund-Financed) add-ons, which are screened by external lenders, show no change in ROA. This stability is consistent with banks filtering out value-destroying projects but limiting upside variance. Mode 2 (Platform-Financed) add-ons exhibit a more deceptive stability. While they also show no significant decline on average, this aggregate null result masks a critical agency failure driven by asset composition. I find that Mode 2 acquisitions of asset-light targets perform adequately, but value destruction is concentrated entirely in high-tangibility Mode 2 targets, specifically those with significant pledgeable assets. This specific failure challenges the view that internal capital markets in PE efficiently allocate resources. Instead, it is consistent with the view that internal funds facilitate aggressive expansion into lower-quality projects, specifically when tangible assets are available to rationalize the investment.

The central contribution of the paper is linking the governance breakdown within Mode 2 to the specific mechanism of collateral screening and empire building. I interpret the divergence in these financing structures by contrasting the standard view of incomplete contracting with the agency view of empire building. The conventional wisdom, formalized by Hart and Moore (1994), posits that asset tangibility enables debt financing by securing the lender: if a target possesses high collateral, the bank is protected by liquidation value, rendering active screening less critical. In this framework, collateral and debt go hand-in-hand. However, my findings reveal what happens when this link is severed. In Mode 2 add-ons, managers utilize internal capital to acquire targets without triggering a new debt underwriting event. I show that when the disciplining presence of a deal-specific lender is removed, high collateral ceases to be a safeguard. Instead, consistent with the agency costs of free cash flow (Jensen, 1986; Hart and Moore, 1995), high asset pledgeability serves as a lure for empire building. This enables managers to rationalize the acquisition of asset-heavy but underperforming hospitals that external lenders would otherwise reject.

Beyond the financial mechanism, I document the operational consequences of these incentives. In a sector where reimbursement rates are largely fixed by regulation, platform hospitals achieve efficiency gains through "within-rule" strategies: optimizing coding, increasing the case-mix index (CMI), and improving throughput rather than raising commercial prices. This suggests that the successful PE model in the hospital industry relies on sophisticated revenue-cycle management that requires scale to execute. In contrast, add-on acquisitions generally show signs of contraction. They reduce labor and service scope without achieving corresponding efficiency gains.

This paper makes three primary contributions to the literature on private equity, corporate

finance, and healthcare finance. First, I open the "black box" of the roll-up strategy by being the first to establish a staged perspective on selection and performance in the hospital industry. While prior work typically treats PE ownership as a uniform treatment, I demonstrate that the hospital roll-up is a multi-phase process where sponsors select low-leverage platforms to serve as financial anchors, creating robust operational value that subsequent add-on acquisitions fail to replicate. Second, I explain this performance discrepancy by being the first to decompose add-on acquisitions into distinct financing modes based on their capital source. I provide evidence that while externally financed deals preserve value, the stagnation of internally financed deals masks a critical agency failure: value destruction is concentrated entirely in high-tangibility targets where internal capital is used to fund empire building. Third, I provide novel empirical evidence for the governance role of external debt markets. By showing that high collateral facilitates empire building specifically when lender scrutiny is removed, I demonstrate that asset tangibility is not a standalone governance substitute. Instead, my findings establish that the disciplining power of collateral is conditional on the presence of an external lender to enforce a hard budget constraint, offering a new financial explanation for the heterogeneous outcomes observed in private equity-backed healthcare.

2 Related Literature

This study contributes to several strands of literature on private equity, financial intermediation, and health care markets.

First, I add to research on the real effects of private equity ownership in hospitals (Liu, 2022; Gao et al., 2025) and related provider settings such as nursing homes (Gupta et al., 2024; Gandhi et al., 2025), as well as on operational changes following buyouts more generally (Kaplan, 1989; Harris et al., 2005). Prior work typically treats private equity acquisition as a homogeneous event. I introduce a classification of targets into stand-alone, platform, and add-on categories and show how outcomes vary with a hospital's position relative to the roll-up sequence. This framework enables a more nuanced assessment of how value creation strategies evolve within portfolio buildouts. Furthermore, by distinguishing platforms from add-ons, I add nuance to the mixed evidence on staffing and quality in PE-acquired providers (Lichtenberg and Siegel, 1990; Davis et al., 2014; Dafny et al., 2019; Eliason et al., 2020; Cerullo et al., 2021, 2022).

Second, I relate to research on hospital responses to reimbursement rules. Classic evidence shows that hospitals exploit within-rule levers to raise revenues by adjusting coding and scope rather than by fundamentally altering care delivery. For example, hospitals increased coded severity in response to Medicare payment reforms (Dafny, 2005; Silverman and Skinner, 2004).

This precedent motivates my test of whether platforms similarly expand service-line scope and raise measured severity while keeping commercial price stable.

Third, and most centrally, I connect these divergent outcomes to theories of financial contracting and internal capital markets. My results provide empirical support for the framework of Axelson et al. (2009), who argue that the governance value of the PE model relies on the screening discipline of external debt markets. I show that while externally financed add-ons (Mode 1) consistently preserve value, internally financed add-ons (Mode 2) exhibit a deceptive aggregate stability. This mean result masks a critical agency failure: value destruction is concentrated entirely in high-tangibility targets. This aligns with Almeida and Wolfenzon (2006), who predict that internal funds are often allocated to lower-quality projects that external markets would reject. Crucially, I link this governance breakdown to the agency mechanism of Jensen (1986). By showing that underperformance is driven by targets with high pledgeable assets, I demonstrate that without the "hard budget constraint" of external debt (Hart and Moore, 1995), asset tangibility serves not as a substitute for monitoring (Hart and Moore, 1994), but as a facilitator of empire building.

Fourth, I build on research on merger selection and roll-up strategies. While prior work on roll-ups emphasizes operational synergies, scope expansion, and price hikes (Bourreau and Doğan, 2006; Borell and Heger, 2013; Bansraj and Smit, 2017; Hammer et al., 2022; Asil et al., 2024), financial conditions also drive target selection. Rhodes-Kropf et al. (2005) establish that valuation deviations determine the matching of acquirers and targets in public markets. I extend this logic to the private equity context, showing that financing capacity, specifically the platform's internal capital and unused debt capacity, acts as the primary currency driving the selection of add-ons. While the platform serves as the disciplined foundation of the roll-up, add-on selection is often distorted by this excess borrowing capacity, which helps reconcile why these later targets deliver narrower savings and fail to replicate the broader improvements observed at the platform.

Finally, I contribute to research on hospital financing, which shows that hospitals' investment and operating decisions are highly sensitive to financial conditions even outside the private equity context. Nonprofit hospitals adjust capital expenditures in response to the cost of capital and financing constraints (Wedig et al., 1989; Calem and Rizzo, 1995), and regulation and governance shape investment and operating outcomes during ownership conversions (Leone et al., 2005; Herpfer et al., 2024). Other studies find that hospitals increase investment in response to positive asset inflows and cut back after negative wealth shocks (Adelino et al., 2015; Dranove et al., 2017; Adelino et al., 2022). Debt structure also influences bargaining with payers, underscoring the central role of financing in hospital strategy (Towner, 2020). My analysis extends this literature by showing how financing advantages are sequenced across

platform and add-on acquisitions in private equity roll-ups.

3 Conceptual Framework

I propose that the divergence in post-acquisition outcomes is driven primarily by differences in financial contracting and market discipline, which interact with the specific institutional constraints of the hospital industry. I outline two distinct channels: a primary "Screening and Discipline Channel" that governs target selection based on financing mode, and a secondary "Operational Channel" that dictates how value is captured under fixed reimbursement rules.

3.1 The Screening and Discipline Channel

The core mechanism relies on the governance role of external debt markets. Following Axelson et al. (2009) and Hart and Moore (1995), I posit that the source of capital determines whether the acquisition is subject to a "hard budget constraint" or whether it is exposed to the agency costs of free cash flow.

In a fund-financed acquisition (Mode 1), the sponsor must secure new, deal-specific external debt. Because banks and institutional lenders bear downside risk, they perform a critical monitoring function, screening transactions based on verifiable, contractible information. As Hart and Moore (1995) argue, the obligation to make fixed debt service payments creates a hard budget constraint that forces managers to disgorge cash and avoid negative-NPV projects. When a deal requires fresh underwriting, the sponsor must convince a skeptical third party that the target's fundamentals support the valuation. This external check effectively filters out marginal projects driven by managerial over-optimism or empire building tendencies.

In contrast, when a sponsor utilizes internal capital markets (Mode 2), this external discipline is bypassed. By funding acquisitions through the platform's existing credit facility or operating cash flows, the sponsor avoids deal-specific underwriting. In this setting, the agency costs of free cash flow described by Jensen (1986) re-emerge. Without the binding constraint of a new lender to veto the deal, the sponsor retains the discretion to invest in lower-quality targets to pursue size over value.

Crucially, I argue that the effectiveness of asset tangibility as a governance mechanism is conditional on the presence of a lender. The standard view in incomplete contracting theory Hart and Moore (1994) posits that high collateral reduces agency costs by securing the lender's liquidation value, thereby substituting for active monitoring. However, this mechanism assumes a lender exists to enforce the claim. In Mode 2, where the deal-specific lender is absent, I predict that this relationship breaks down. Instead of securing value, high collateral facilitates

empire building by providing a "deceptive anchor" for valuation. Managers can rationalize the acquisition of asset-heavy targets using internal funds, even when those assets do not generate sufficient cash flow to cover the cost of capital. Thus, I predict that the value destruction in roll-ups will be concentrated precisely where the standard theory would least expect it: in high-collateral targets that lack external lender discipline.

3.2 Institutional Context: Value Creation under Fixed Prices

While the financing channel governs which targets are acquired, the institutional setting of the hospital industry constrains how operational value is created or lost. This study focuses on hospitals where Medicare and Medicaid account for the majority of discharges. Because these public programs utilize fixed prospective payment schedules (IPPS/OPPS), discretionary price negotiation is largely precluded.

This constraint acts as a "clean laboratory" for governance. This setting contrasts sharply with the commercial insurance market, where private equity value creation is often linked to increased bargaining power and higher negotiated prices (Liu, 2022; Asil et al., 2024). In the segment analyzed here, however, the inability to arbitrarily increase prices means that financial performance is driven almost exclusively by cost efficiency and volume management. Any deterioration in Return on Assets (ROA) cannot be attributed to a failure of pricing power, but must stem from operational mismanagement or the acquisition of fundamentally impaired assets.

In this fixed-price environment, successful operators (Platforms) create value through "within-rule" strategies that require scale and sophistication, such as investing in Revenue Cycle Management (RCM) to optimize clinical documentation and coding. These strategies involve high fixed costs that favor large, efficient entities. Conversely, internally financed add-ons, particularly the high-collateral targets that drive the aggregate underperformance, fail to justify the investment required to upgrade these systems. Instead, the agency costs of empire building manifest as operational stagnation: having acquired an asset-heavy target without a clear plan for efficiency gains, the sponsor is left with a hospital that cannot cover its cost of capital under the fixed reimbursement regime.

4 Hypothesis Development

When monitoring is costly, external lenders act as a screening mechanism, financing only those transactions where verified fundamentals support the valuation (Diamond, 1991; Rajan and Winton, 1995). In the private equity context, the governance value of the buyout model relies

heavily on this discipline of external debt markets (Axelson et al., 2009). Because platform acquisitions require raising new outside capital, they face strict market scrutiny. In contrast, subsequent add-on acquisitions are predominantly financed internally from the platform's balance sheet, thereby bypassing the "hard budget constraint" of external underwriting (Hart and Moore, 1995). While private equity aims to create value through financial, governance, and operational engineering (Kaplan and Strömberg, 2009), the success of this deployment depends on whether the financing structure enforces discipline or enables agency costs.

H1: Staged selection and the financial anchor.
Platform targets are selected for high gross margins and low leverage to maximize unused debt capacity. In contrast, internally financed (Mode 2) add-on targets are selected for high leverage and high gross margins but low return on assets. This specific profile reflects financially constrained turnarounds that possess strong unit economics but are burdened by legacy debt or inefficiency. Fund-financed (Mode 1) add-ons display a neutral financial profile, consistent with external lenders screening out the highly levered, low-ROA targets that the internal capital market accepts.

Rationale. Platform financing is priced against observable risk, favoring candidates with strong cash flows to minimize borrowing costs (Myers, 1977). While fund-financed add-ons must meet these standard lending criteria, internally financed add-ons utilize the platform's balance sheet to absorb targets that banks would otherwise reject. This aligns with theories of internal capital markets where internal funds are allocated to projects that cannot clear external credit hurdles (Almeida and Wolfenzon, 2006).

H2: Staged Financing and the Structural Repricing Gap.
Platform acquisitions experience an immediate and sustained reduction in financing costs at deal close, driven by a structural reset in market-adjusted spreads ($r_{IB} - LIBOR$). In contrast, add-on acquisitions do not receive a fresh repricing event at the deal level. While fund-financed add-ons (Mode 1) undergo deal-specific underwriting that maintains external discipline, platform-financed add-ons (Mode 2) utilize the platform's pre-existing financing capacity, thereby bypassing market-based repricing and screening.

Rationale. The platform acquisition serves as the primary underwriting event where the consolidated entity's risk profile is reset by external lenders. Subsequent add-ons enter a bifurcated governance environment: Mode 1 deals retain the discipline of fresh debt markets, whereas Mode 2 deals rely on the platform's internal capital market. This internal path grants the sponsor immediate access to capital but removes the external screening mechanism, creating the necessary conditions for agency-driven investment in marginal or underperforming projects (Axelson et al., 2009).

H3: Divergent post-acquisition performance.
Platform hospitals exhibit improvements in operating margin and return on assets (ROA), while add-ons exhibit no significant profitability gains. This aggregate stagnation masks a divergence by financing source: externally screened (Mode 1) add-ons preserve value, while internally financed (Mode 2) add-ons underperform relative to the screened group.
Rationale. Consistent with the agency costs of free cash flow (Jensen, 1986), the removal of the hard budget constraint in Mode 2 allows sponsors to fund marginal projects that would otherwise be rejected. In contrast, the requirement for external financing in Mode 1 imposes a discipline that filters out negative-NPV investments (Hart and Moore, 1995).

H4: The Collateral Channel (Empire Building).
The underperformance of internally financed add-ons is concentrated in high-collateral targets. Performance is decreasing in the target's asset tangibility when external monitoring is absent.
Rationale. Standard incomplete contracting theory suggests high collateral should mitigate agency costs by serving as a substitute for active monitoring (Hart and Moore, 1994). However, this mechanism assumes the presence of a creditor to enforce the contract. In Mode 2, where the external lender is absent, high asset tangibility serves instead as a lure for empire building. Managers use the contractible nature of tangible assets to rationalize the acquisition of operationally inefficient hospitals that external lenders would reject due to insufficient debt service coverage (Jensen, 1986).

5 Data and Sample

I construct a Hospital-Fund-Year dataset, meticulously constructed by integrating multiple data sources, to evaluate the effectiveness of the roll-up strategy in hospital acquisitions by PE firms. This dataset enables a detailed analysis of how operating performance evolves from initial platform acquisitions to subsequent add-on deals, offering insights into the challenges and dynamics of expanding healthcare portfolios. It provides a comprehensive examination of how post-buyout hospital operations and performance unfold as PE firms scale through sequential acquisitions, revealing key patterns and outcomes in their efforts to integrate and manage multiple hospitals. The final hospital-year panel dataset spans from 1996 to 2019, covering financials, operational metrics, and ownership status. The primary data sources are CMS Cost Reports, CMS Quality Net, PitchBook, and American Hospital Association (AHA) data, supplemented by Preqin, Capital IQ, SDC Platinum, and FactSet.

5.1 Unit of Observation and Accounting Scope

CMS Cost Reports (HCRIS) are filed by the hospital operating entity and are not consolidated at the platform hospital system (the parent that owns the hospitals and often books buyout and add-on financing). Parent-level borrowings can therefore be invisible in hospital filings. Hospital liabilities may show little change, and they can even fall if deal-close refinancing retires operating-company loans. Throughout the analysis, leverage and interest measures are interpreted as hospital-level outcomes, not the parent system's consolidated capital structure.

5.2 Data Sources

The dataset is constructed using the following primary data sources:

CMS Cost Reports

The CMS Cost Reports provide standardized financial and operational information for all Medicare-certified hospitals, including revenues, expenses, assets, liabilities, and staffing. These filings form the backbone of the analysis because they capture hospital-level accounting on a consistent basis across time and facilities. From these reports I construct outcome variables such as interest-to-assets, leverage ratios, operating margin, and related measures of financial performance. They also provide detailed information on expenditures, patient volumes, and personnel, which allows for a comprehensive assessment of hospitals' financial health and operating behavior before and after acquisition.

CMS Quality Net

The CMS Quality Net database reports standardized hospital quality indicators, including clinical outcomes, condition-specific mortality, readmission rates, and patient experience scores from the HCAHPS survey. These measures are critical for evaluating whether changes in ownership affect quality of care and patient satisfaction. By linking these indicators to acquisition events, I assess whether private equity entry is associated with shifts in measurable dimensions of hospital performance beyond financial outcomes.

PitchBook

This dataset provides extensive information on private equity deals, including acquisition details, investor characteristics, and deal structures. This data is pivotal for identifying the timeline of acquisitions, categorizing hospitals based on whether they were acquired as part of

the first or subsequent deal by a PE firm, and understanding the strategic motivations behind these investments.

American Hospital Association (AHA) Data

The AHA dataset provides detailed information on hospital systems, including ownership changes and system affiliations. This is crucial for tracking the transitions in hospital ownership, particularly identifying PE involvement and analyzing operational changes over time. By linking this data with CMS records, I construct a longitudinal view of hospital performance, enabling robust analysis of ownership transitions and their operational impacts.

Supplementary Data

I also supplement my dataset with information from multiple databases including Preqin, SDC Platinum, Capital IQ, and FactSet, which provide details on both hospital-level and system-level acquisitions. These additional sources help ensure that any hospital acquisition history missing from PitchBook is captured, allowing for a more comprehensive sequence of each PE firm's hospital acquisition timeline. Additionally, this data is used to construct a robust control sample of never-acquired hospitals.

5.3 Mapping the Sequence of Hospital Roll-ups

A central challenge in analyzing PE-backed hospital acquisitions is to distinguish the strategic role each deal plays within a roll-up. My study introduces a rule-based framework that classifies each deal as a standalone, platform, or add-on, based on its relationship to other deals executed by the same sponsor.[1]

Standalone deals are hospital acquisitions that are not connected to any other investment by the same PE sponsor. These typically reflect isolated, single-asset transactions rather than deliberate roll-up strategies. In contrast, platform deals represent the sponsor's initial hospital acquisition within a chain. Add-ons are subsequent targets that can be linked to a preexisting platform hospital acquired by the same sponsor.

To identify these roles, I link fund-level and portfolio-level datasets and examine the full set of hospital acquisitions by each general partner (GP). Some roll-ups occur entirely within a single fund, while others span multiple funds managed by the same sponsor. This fund-level

[1]This framework enables an empirical comparison by deal role rather than by ownership in the aggregate. Distinguishing the stages of a roll-up, from platform formation to add-on expansion, allows the analysis to track the staging of value creation across financing, balance-sheet adjustment, and operations, and to assess whether improvements replicate at later targets within a roll-up.

mapping enables consistent classification even when follow-on acquisitions are financed through successor vehicles.

Add-on identification follows a sequence-based rule. Each hospital acquisition is matched to the earliest preceding platform by the same sponsor using cleaned and tokenized hospital and acquirer names. I compute the Jaccard similarity between these token sets and assign add-on status if the similarity exceeds a threshold of 0.70 and the platform predates the candidate target. This method captures both exact and fuzzy matches in naming, allowing for systematic identification of acquisitions that are likely part of a common roll-up strategy. To ensure accuracy, I perform manual verification of all linkages that pass the threshold and resolve ambiguous cases individually. Once a linkage is confirmed, the add-on inherits a chain identifier from its platform. This chain structure traces the evolution of each roll-up over time and across funds, and it cleanly separates new platform launches from subsequent portfolio expansion.[2]

Beyond identifying the sequence, I further decompose the add-on sample by its financing structure to isolate the role of external monitoring. I employ a hierarchical text-analysis strategy on deal synopses to distinguish between Mode 1 (Fund-Financed) and Mode 2 (Platform-Financed) acquisitions. Mode 2 deals are identified through entity substitution in the transaction records, where the legal acquirer is an existing portfolio company rather than the PE fund itself. This classification isolates a clean sample of Mode 1 deals that, by bypassing the platform's internal capital markets, are subject to the deal-specific lender scrutiny and fresh underwriting required for new fund-level debt.

5.4 Sample Construction

The final dataset consists of 848 unique hospitals acquired by private equity (PE) firms. Among these, 785 participated in roll-up activity by PE sponsors, while 63 hospitals were acquired in one-off stand-alone transactions with no subsequent add-on activity during the study window. Within the 785 roll-up hospitals, 469 are classified as platform acquisitions and 316 as add-on acquisitions executed after a platform had been established by the same sponsor. Among these 316 add-on acquisitions, 215 (approximately 68%) use Mode 2 financing, in which acquisitions are financed internally at the platform level, and 101 (approximately 32%) use Mode 1 financing, in which the fund raises new, externally screened debt. The platform versus add-on designation

[2] A practical complication is that the observed history is finite. I restrict the treated sample to hospitals with at least two post-acquisition years so that outcomes can be tracked beyond the deal date. However, because the panel is right-censored at the end of the observation window, some hospitals that appear as standalones during the sample period could in fact be platforms if subsequent add-ons occur just beyond the horizon. This constitutes a form of misclassification bias induced by right-censoring, where early platforms may be incorrectly labeled as standalones simply because their add-ons fall outside the available data window. To address this, I implement a bounding robustness check in which I reclassify all standalones as platforms and re-estimate the event-study analyses using only platform and add-on samples (see Figure A6).

is based on deal sequencing at the sponsor-hospital level and reflects whether a target initiates the sponsor's presence in the platform system or is later integrated into that platform as an add-on.

This subset of 785 roll-up hospitals, with an explicit distinction between the initial platform and subsequent add-ons, is central for studying how value creation unfolds over the roll-up sequence. At the site level, separating platform from add-on deals allows a test of whether early platform hospital gains are sustained at later-acquired add-on hospitals or whether they fade. In particular, the roll-up subsample allows me to trace balance-sheet adjustments, operating performance, staffing composition, and throughput over time as sponsors expand their portfolios, while the 63 stand-alone acquisitions provide a contrast where no roll-up expansion occurs.

Empirically, I use two complementary samples aligned to the two identification strategies. For the collapsed DID and the dynamic DID (event study), I build a matched panel at the hospital site level around each PE-treated hospital's baseline year (the year prior to acquisition). Matching uses three nearest neighbors by Mahalanobis distance with exact matching on ownership, teaching status, metro status, and Census division. Control hospitals inherit the treated hospital's baseline plus one year as a mock treatment year to align event time. I restrict treated hospitals to first acquisitions in 1998 to 2017 so that at least two pre and two post years are observed, and I form matching pools from pre-acquisition years 1997 to 2016. For the instrumental-variables design, which uses state-year variation in the CPOM Regulation Index, I estimate on the full, unmatched hospital panel with hospital and year fixed effects. Using the full sample preserves the complete set of potential compliers and the full cross-state timing in the instrument, which improves first-stage power and keeps the compliance margin interpretable at the market level. To avoid confounding from pandemic-era disruptions to financing, staffing, utilization, and acquisition timing, I truncate the outcome panel at 2019 and exclude observations from 2020 onward.

Across specifications, control variables are defined consistently. Hospital-level controls include log number of beds, Medicare share, Medicaid share, outpatient share, and case-mix index; county controls include log population, log fair-market rent, and the shares of Black and Asian residents. The working panel spans 1996 to 2019 for outcomes, with pre-periods and post-periods aligned to each hospital's acquisition timing. Stand-alone, platform, and add-on indicators are mutually exclusive by design. Further details on data construction are provided in Appendix C.

5.5 Summary Statistics

In Table 1, I compare baseline characteristics of hospitals acquired by private equity with those never acquired. Statistics are averaged over the three years preceding acquisition to provide a balanced view of pre-acquisition profiles. The goal is not to establish causal drivers but to document unconditional differences that highlight selection patterns and motivate the subsequent analysis.

Financing indicators reveal clear distinctions in capital structure. PE-acquired hospitals face heavier interest burdens, with higher borrowing rates and wider spreads over LIBOR. While average leverage ratios are comparable, PE targets exhibit a distinct liability structure, relying more on non-interest-bearing liabilities. Capital expenditures are modestly lower, consistent with sponsors targeting assets where investment has been deferred. Overall, PE targets enter the portfolio with financing structures that imply tighter debt-service pressures and greater sensitivity to borrowing costs.

Profitability also diverges systematically. Relative to never-acquired hospitals, PE targets report higher return on assets, higher operating income relative to assets, and stronger operating margins. These differences suggest that, on average, private equity investors select hospitals with demonstrated financial viability, providing a functional operating base upon which to build.

Operational outcomes align with these financial patterns and highlight the asset intensity of the targets. PE-acquired hospitals are substantially larger, with higher total costs, more adjusted discharges, and higher case-mix indices. Even after case-mix adjustment, they report significantly more Medicare discharges and higher Medicare inpatient costs. Crucially, costs per adjusted discharge are above those of never-acquired hospitals, reflecting more resource-intensive operations. This asset-heavy profile is central to understanding the governance challenges discussed later.

Employment and wages scale accordingly. PE-acquired hospitals employ more staff overall, especially in core clinical roles, and pay higher wages across both core and administrative categories. Hospital characteristics round out the picture: PE targets possess larger fixed asset bases, reflected in significantly higher bed capacity, serve somewhat more Medicare patients, and rely less on outpatient revenue. They also serve communities with higher proportions of Black and Asian patients and operate in areas with slightly higher rental prices, reflecting local market conditions.

Breakout by deal role. Table 2 reports pre-acquisition means by deal role (stand-alone, platform, and add-on) and pairwise differences. These splits reveal the structural logic of the roll-up strategy.

Financing gaps are stark and support the "financial anchor" hypothesis. Platforms enter with significantly lower leverage than add-on targets, creating the unused debt capacity required to fund future growth. In contrast, add-on targets exhibit the characteristics of financially constrained assets: they lean more heavily on interest-bearing debt and carry higher leverage burdens.

Profitability gaps further clarify these roles. Platforms are positioned above add-ons in performance, underscoring their role as the stable foundation of the roll-up. Operationally, platforms are the largest by throughput, followed by add-ons, while stand-alones are smaller. Costs per adjusted discharge are highest at stand-alones and lower at platforms and add-ons, consistent with scale economies. Case-mix and price measures track these differences: stand-alones have the highest CMI, while platforms and add-ons report higher Medicare volumes.

Employment patterns reflect these distinct operational profiles. Add-ons employ more core and administrative staff than platforms, consistent with a more resource-intensive cost structure prior to acquisition. Platforms, however, pay higher administrative wages, potentially reflecting investments in more sophisticated management or revenue cycle capabilities. Hospital characteristics and demographics further differentiate the groups: platforms are largest by bed count, reinforcing their status as the asset anchor. Stand-alones serve a higher Medicare share, while add-ons more frequently serve Medicaid patients. Outpatient shares are highest for stand-alones, while the roll-up strategy (platforms and add-ons) appears focused on hospitals with heavier reliance on inpatient activity. Platforms also serve communities with higher Black population shares than stand-alones.

These descriptive statistics underscore that selection into stand-alone, platform, and add-on roles is strategic. Platforms combine operational scale with relatively clean balance sheets, acting as the anchor. Add-ons, conversely, appear as asset-heavy but financially weaker targets, characterized by higher leverage and lower profitability. Recognizing these pre-existing differences is essential for interpreting post-acquisition outcomes, as the post-buyout divergence in performance is partly conditioned by these initial financial and operational starting points.

The summary statistics therefore show that PE-acquired hospitals differ systematically from never-acquired hospitals and, within the acquired group, by deal role. These unconditional differences highlight the starting advantages of PE targets but should not be interpreted as causal or definitive selection rules. Later, I examine acquisition probability more formally using a logistic regression specification (Table 4), which conditions on hospital and county characteristics and clarifies how leverage and profitability relate to acquisition likelihood across stand-alone, platform, and add-on deals.

6 Empirical Methodology

To address potential confounding factors and baseline differences, as well as to explore potential selection biases observed in pre-acquisition characteristics, I employ a nearest-neighbor matching approach. This methodology is consistent with existing literature on hospital acquisitions (Schmitt, 2017; Prager and Schmitt, 2021; Liu, 2022; Gao et al., 2025), allowing for a robust comparison of post-acquisition outcomes.

Table 1 reveals systematic differences in financial health, profitability, operations, and demographic targeting between PE-acquired hospitals and others, suggesting that PE firms may selectively target hospitals based on specific pre-acquisition characteristics. This selective targeting could potentially skew comparisons of post-acquisition outcomes. In addition to creating a mathced control group for the PE acquired hospitals, to account for the variations across different PE acquisition sequences, I create separate matched control samples for each category: Stand-alone, Platform and Add-on. This distinction is essential, as each acquisition sequence likely follows unique strategic objectives and operates under different conditions.

By constructing control samples for each acquisition category, the matching approach ensures that comparisons between PE-acquired hospitals and their counterparts are based on hospitals with similar pre-acquisition characteristics. This process effectively mitigates potential selection bias arising from baseline differences and provides a more nuanced understanding of how the roll-up strategy impacts hospital outcomes. Distinguishing between initial platform acquisitions and subsequent add-on deals reveals how PE firms balance distinct operational objectives across their portfolio. Moreover, decomposing the add-on category reveals the critical role of financing structure: the divergence between externally screened Mode 1 add-ons and internally funded Mode 2 add-ons highlights the varied incentives that drive underperformance within the add-on strategy.

Additionally, nearest-neighbor matching not only balances characteristics across groups but also sheds light on the criteria likely used by PE firms when selecting hospital targets, such as revenue potential or financial health. This method offers a clearer perspective on the real impact of PE acquisitions on hospital performance and the broader implications of their roll-up strategies.

6.1 Construction of Matched Sample

The matched control group is constructed by excluding from the pool any hospitals that experienced an acquisition during the observation period. For each treated hospital, up to three nearest-neighbor controls are identified using the Mahalanobis distance metric. Matching covariates include hospital characteristics such as the log of total beds, the share of Medicare

and Medicaid discharges, the ratio of outpatient charges, and pre-acquisition profitability. To further improve comparability, matches are restricted to hospitals with the same for-profit status, teaching status, census division, and metropolitan status as the treated hospital. These restrictions ensure that matched comparisons reflect not only similar regional and urban–rural environments but also comparable ownership form and institutional role. Matching is performed with replacement, allowing the same hospital to serve as a control for multiple treated observations when it provides the closest fit across covariates.

The effectiveness of the matching procedure is evaluated by calculating standardized differences between treated and control hospitals for the covariates included in the matching algorithm. Figure 1 presents these standardized differences before and after matching. The figure demonstrates that matching substantially reduces imbalances across the targeted variables, with differences that were large in the raw sample shrinking considerably in the matched design. This provides clear evidence that the matching process achieves a closer alignment between PE-acquired hospitals and their matched controls.

Table 3 reports descriptive statistics for the full matched dataset, pooling PE-acquired hospitals with their matched controls. The table presents means, standard deviations, and percentiles for a wide range of financial, operational, staffing, and demographic variables. Because the table is pooled, it does not directly display treated–control differences, but instead offers a detailed overview of the distributions of hospital characteristics in the analytic sample used for the post-matching analysis. Taken together with Figure 1, which documents the reduction in standardized differences, the table provides a comprehensive picture of the dataset that serves as the basis for the subsequent difference-in-differences and event study estimations.

In sum, the construction of the matched sample addresses the unconditional imbalances highlighted earlier in Tables 1 and 2. By creating a set of control hospitals that closely resemble PE-acquired hospitals on key observable characteristics, the matching design strengthens the credibility of the empirical strategy and provides a more appropriate counterfactual for assessing post-acquisition changes in hospital outcomes.

6.2 Selection Across Acquisition Types

While the Mahalanobis matching procedure aims to balance hospital characteristics such as total beds, Medicare and Medicaid shares, outpatient intensity, and profitability, it is important to acknowledge that multi-deal PE firms may shift their selection strategies across acquisition rounds. Figure 1, particularly panels (c) and (d), shows that hospitals acquired in platform deals exhibit more distinct standardized differences across several variables than those acquired as add-ons.

For example, prior to matching, the standardized difference in Medicaid share is approximately 0.4 for platform acquisitions but only 0.1 for add-ons. The outpatient share shows a similar pattern, with a difference of about -0.4 for platform targets versus -0.2 for add-ons. The log of total beds differs by about 0.4 for platform targets, compared to 0.2 for add-ons. These gaps suggest that platform hospitals are selected for their distinct scale and operational profile, serving as the foundational anchor for the portfolio, whereas add-ons closer resemble the average control hospital.

This pattern aligns with the staged investment strategy of a roll-up. PE firms first secure a "platform" asset with distinct scale and market presence to bear the debt load, then shift toward acquiring smaller, more generic targets to build volume.

To further explore these selection dynamics and formally test H1, I estimate the likelihood of PE acquisition using a logistic regression model that decomposes financial performance into capital structure, core operating profitability, and bottom-line returns:

$$\Pr(\texttt{Acquired}_{i,t} = 1) = \Lambda\left(\alpha + \beta_1 \texttt{Lev}_{i,t-1} + \beta_2 \texttt{Margin}_{i,t-1} + \beta_3 \texttt{ROA}_{i,t-1} + \mathbf{X}'_{i,t}\gamma + \epsilon_{i,t}\right) \quad (1)$$

where $\Lambda(\cdot)$ denotes the logistic function, and $\mathbf{X}_{it}$ includes hospital and county-level controls. I estimate this model separately for all PE acquisitions and by deal type: standalone, platform, and add-on. Furthermore, to test whether the financing source itself is determined by target characteristics, I decompose the add-on sample into Mode 1 (Fund-Financed) and Mode 2 (Platform-Financed) acquisitions.

This specification isolates the financial determinants of target selection with greater precision. Including both Operating Margin and ROA allows the model to distinguish between targets with strong unit economics, specifically high operating margins, versus those with net inefficiencies or overhead bloat reflected in low ROA, a common profile for private equity turnarounds. Concurrently, the Leverage coefficient tests the "Financial Anchor" hypothesis (H1). If platforms are selected to bear the debt capacity of the roll-up, they should exhibit a negative coefficient on leverage, reflecting unused debt capacity. Finally, estimating separate models for Mode 1 and Mode 2 tests the mechanism of internal capital markets: if platform financing acts as a funding source for marginal projects, Mode 2 acquisitions should be strongly associated with financially constrained targets, characterized by high leverage and low ROA, that might otherwise be rejected by external lenders.

6.3 Baseline Model

6.3.1 Pooled Effects Across Deal Types

I estimate the effect of private equity acquisition on hospital outcomes with a difference-in-differences design that separates deals by role in the roll-up sequence and by post-event horizon. Let i index hospitals and t years. Each treated hospital is classified as stand-alone (a one-off acquisition not part of a roll-up), platform (the first deal in a multi-hospital roll-up), or add-on (a subsequent acquisition by the same sponsor). Event time is $g_{i,t}$, measured in years relative to the first PE targeting year. For each outcome block, I form two non-overlapping post windows: short run $[0, 4]$ and long run $[5, 8]$. I then estimate the short-run and long-run specifications separately on the corresponding analysis samples.

For a generic post window $w \in \{\text{SR}, \text{LR}\}$, the estimating equation is

$$\begin{aligned} Y_{i,t} = \phi_S^w\big(\texttt{Stand-alone}_i \times \text{Post}_{i,t}^w\big) + \phi_P^w\big(\texttt{Platform}_i \times \text{Post}_{i,t}^w\big) + \phi_A^w\big(\texttt{Add-on}_i \times \text{Post}_{i,t}^w\big) \\ + \mathbf{X}_{i,t}'\boldsymbol{\beta} + \alpha_i + \mu_{m(i)} + \kappa_{g_{i,t}} + \varepsilon_{i,t}. \end{aligned} \tag{2}$$

where $\text{Post}_{i,t}^{\text{SR}} = \mathbb{1}\{0 \le g_{i,t} \le 4\}$ for the short run and $\text{Post}_{i,t}^{\text{LR}} = \mathbb{1}\{5 \le g_{i,t} \le 8\}$ for the long run. The vector $\mathbf{X}_{i,t}$ includes hospital controls: log(beds), Medicare share, Medicaid share, outpatient share, and case-mix index (CMI); and county controls: log(population), log(fair-market rent), Black share, and Asian share.

Hospital fixed effects α_i absorb time-invariant heterogeneity. Match-group fixed effects $\mu_{m(i)}$ absorb differences across matched sets. Event-time fixed effects $\kappa_{g_{i,t}}$ flexibly control for shocks common to all units at the same relative time g. Standard errors are two-way clustered by hospital and by match group to allow for serial correlation within hospitals and cross-sectional dependence within matched sets. This is important because treatment is assigned at the hospital level and comparisons are organized within matched cohorts.[3]

The coefficients ϕ_d^w for $d \in \{S, P, A\}$ capture average treatment effects by deal type within window w. The platform parameters ϕ_P^w identify the anchor-deal channel. The add-on parameters ϕ_A^w capture the incremental contribution of subsequent targets once folded into the platform. Stand-alone parameters ϕ_S^w are reported for completeness but interpreted cautiously given smaller samples.

6.3.2 Add-on mechanism: Mode and collateral screening specifications

To test the core mechanism implied by Axelson et al. (2009) and Jensen (1986), namely, that external debt markets screen projects while internal capital markets may fund inefficient em-

[3]Results are robust to clustering at the hospital level only.

pire building, I estimate mechanism-specific DID specifications that isolate heterogeneity by financing mode and target asset tangibility.

To ensure that these estimates are not confounded by the distinct trends of platform or stand-alone acquisitions, I restrict the estimation sample strictly to add-on acquisitions and their matched controls. All platform and stand-alone treatments (and their associated controls) are excluded from this subsample. As in the baseline specifications, each regression includes hospital fixed effects α_i, match-group fixed effects $\mu_{m(i)}$, event-time fixed effects $\kappa_{g_{i,t}}$, and the vector of time-varying controls $\mathbf{X}_{i,t}$. Standard errors are two-way clustered by hospital and match group.

Mode (binary) specification. To estimate the average post-acquisition effect for add-ons financed under each mode, I estimate:

$$\begin{aligned} Y_{i,t} = \gamma_0 + \gamma_1\big(\texttt{Mode1}_i \times \texttt{Post}_{i,t}\big) + \gamma_2\big(\texttt{Mode2}_i \times \texttt{Post}_{i,t}\big) \\ + \mathbf{X}'_{i,t}\boldsymbol{\beta} + \alpha_i + \mu_{m(i)} + \kappa_{g_{i,t}} + \varepsilon_{i,t}, \end{aligned} \tag{3}$$

where $\texttt{Mode1}_i$ and $\texttt{Mode2}_i$ are time-invariant indicators for Fund-financed (Mode 1) and Platform-financed (Mode 2) add-ons, respectively. Because the sample is restricted to add-ons and their controls, γ_1 and γ_2 directly capture the average treatment effect for each financing mode relative to the control group.[4]

Heterogeneity by Pre-Acquisition Asset Tangibility. To examine whether asset tangibility facilitates empire building in the absence of a monitor, I estimate a specification that decomposes the treatment effect into four mutually exclusive subgroups based on the target's ex-ante collateral capacity.

I define $\texttt{HighTan}_i$ as a time-invariant indicator equal to one if the target's ratio of tangible assets (defined as the sum of fixed assets, inventory, and accounts receivable, following the asset pledgeability framework of Almeida and Campello, 2007) to total assets in the year prior to acquisition $(t-1)$ is above the sample median, and $\texttt{LowTan}_i$ as its inverse.[5] Determining this classification at $t-1$ ensures that it reflects the collateral capacity observed by the sponsor at

[4] I verify that the results reported in this section are robust to estimating a fully interacted model on the complete sample. Specifically, I estimate a pooled specification including all acquisition types: $Y_{i,t} = \beta_1(\texttt{Standalone}_i \times \texttt{Post}_{i,t}) + \beta_2(\texttt{Platform}_i \times \texttt{Post}_{i,t}) + \beta_3(\texttt{Mode1}_i \times \texttt{Post}_{i,t}) + \beta_4(\texttt{Mode2}_i \times \texttt{Post}_{i,t}) + \dots$. The coefficients for Mode 1 and Mode 2 in the pooled full-sample specification are statistically indistinguishable from those obtained in the restricted subsample, confirming that the restricted design improves precision without introducing bias.

[5] I verify that the results are robust to alternative definitions of asset tangibility. I re-estimate the specification using "Strict Tangibility" (defined solely as the ratio of Net Property, Plant, and Equipment to Total Assets) to isolate the role of physical hard assets, as well as a broader measure including all current assets.

the time of selection. I estimate:

$$
\begin{aligned}
Y_{i,t} = \delta_1\big(\texttt{Mode1}_i \times \texttt{Post}_{i,t} \times \texttt{LowTan}_i\big) + \delta_2\big(\texttt{Mode1}_i \times \texttt{Post}_{i,t} \times \texttt{HighTan}_i\big) \\
+ \delta_3\big(\texttt{Mode2}_i \times \texttt{Post}_{i,t} \times \texttt{LowTan}_i\big) + \delta_4\big(\texttt{Mode2}_i \times \texttt{Post}_{i,t} \times \texttt{HighTan}_i\big) \\
+ \delta_5\big(\texttt{Post}_{i,t} \times \texttt{HighTan}_i\big) \\
+ \mathbf{X}'_{i,t}\boldsymbol{\beta} + \alpha_i + \mu_{m(i)} + \kappa_{g_{i,t}} + \varepsilon_{i,t}.
\end{aligned} \tag{4}
$$

The term δ_5 controls for the baseline differential trajectory of high-tangibility hospitals in the control group (i.e., a "High Tangibility × Post" trend). The coefficients δ_1 through δ_4 capture the total marginal treatment effect for each subgroup relative to its matched controls.

Consistent with the empire building hypothesis (H4), I expect δ_4 (Mode 2, High Tangibility) to be negative. This would indicate that value destruction is concentrated in asset-heavy targets where managers use hard assets to rationalize acquisitions that lack external discipline. In contrast, if external lenders effectively screen collateralized deals, δ_1 and δ_2 (Mode 1) should be statistically indistinguishable from zero or positive. Table 8 reports these estimates.

6.4 Instrumenting PE Acquisitions Using CPOM Reforms

To strengthen the causal interpretation of post-acquisition effects within roll-up sequences, I implement an instrumental-variables (IV) strategy that exploits cross-state changes in the Corporate Practice of Medicine (CPOM) doctrine. CPOM rules restrict non-physician corporations from employing physicians or controlling clinical practice, and easing these rules reduces legal and transactional frictions for private-equity entry and integration. I use the CPOM Regulation Index from Liu (2022), a state-year measure in which higher values indicate more permissive CPOM.[6]

Because the research question concerns sequencing within roll-ups, I estimate first stages separately by deal role, distinguishing stand-alone, platform, and add-on targets, rather than treating private-equity entry as a single, homogeneous event. Let $D^g_{it} \in \{0, 1\}$ indicate whether hospital i in year t is exposed through deal role $g \in \{\texttt{PE target}, \texttt{Stand-alone}, \texttt{Platform}, \texttt{Add-on}\}$. Denote by $\texttt{CPOM}_{s(i),t}$ the CPOM index for the state of hospital i. The first stage for role g is

$$
D^g_{it} = \pi_g \, \texttt{CPOM}_{s(i),t} + \mathbf{X}'_{it}\Gamma_g + \alpha_i + \tau_t + u^g_{it}, \tag{5}
$$

where $\mathbf{X}_{it}$ includes hospital controls (log beds, Medicare share, Medicaid share, outpatient

[6]The CPOM Regulation Index in Liu (2022) codifies state permissiveness based on statutes, attorney-general opinions, and case law. Higher values denote more lenient CPOM.

share, case-mix index) and county controls (log population, log fair-market rent, Black share, Asian share). I include hospital fixed effects α_i and year fixed effects τ_t, and estimate (5) separately for each deal role g. Standard errors are clustered by provider. Kleibergen–Paap statistics are reported with the first stage in Table 9.

Given (5), I estimate role-specific IV models that replace the endogenous indicator with its fitted value. For outcome Y_{it}, for example ROA, OI/TA, and financial leverage, the second stage is

$$Y_{it} = \beta_g \, \widehat{D}^{g}_{it} + \mathbf{X}'_{it}\delta + \alpha_i + \tau_t + \varepsilon_{it}, \tag{6}$$

estimated separately for $g \in \{\texttt{PE target}, \texttt{Stand-alone}, \texttt{Platform}, \texttt{Add-on}\}$. I use LIML with a Fuller(1) correction, and cluster standard errors by provider. The coefficients β_g are local average treatment effects for hospitals whose acquisition status at deal role g is shifted by CPOM.

6.5 Dynamic Effects Model

For key outcomes, I complement the baseline short– and long–run estimates with an event–study specification that traces dynamic responses around the acquisition year. To align with staggered timing and to keep composition stable, I estimate separate event studies within each matched sample for: all PE targets, stand-alone targets, platform targets, and add-on targets. Within each sample, I keep the matched groups that contain at least one treated hospital, retain never-treated hospitals in those groups as controls, and require at least three pre-treatment observations per hospital. I implement strict binning of event time to the interval $[-3, +6]$, and I omit the year immediately prior to treatment as the reference period.

Let K_{it} denote the event time (year relative to the first PE targeting year for hospital i), and define $F_{\ell,it} = \mathbf{1}\{K_{it} = -\ell\}$ for $\ell \in \{2, 3\}$ and $L_{\ell,it} = \mathbf{1}\{K_{it} = \ell\}$ for $\ell \in \{0, \ldots, 6\}$, with tail bins at -3 and $+6$. The event–study regression for outcome Y_{it} is

$$Y_{it} = \sum_{\ell=2}^{3} \theta_{-\ell} \, F_{\ell,it} \; + \; \sum_{\ell=0}^{6} \theta_{\ell} \, L_{\ell,it} \; + \; \mathbf{X}'_{it}\beta \; + \; \alpha_i \; + \; \kappa_{\Delta t(i)} \; + \; \mu_{m(i)} \; + \; \varepsilon_{it}, \tag{7}$$

where α_i are hospital fixed effects, $\kappa_{\Delta t(i)}$ are event–time fixed effects based on years relative to acquisition (implemented via `yeargap`), and $\mu_{m(i)}$ are match–ID fixed effects. The control vector $\mathbf{X}_{it}$ includes hospital controls (log beds, Medicare share, Medicaid share, outpatient share, case–mix index) and county controls (log population, log fair–market rent, Black share, Asian share). Estimation uses analytical weights when available and equals one otherwise,

and standard errors are two–way clustered by hospital and match–ID. The omitted category is $K_{it} = -1$, so the coefficients $\theta_{-\ell}$ and θ_{ℓ} are relative to the year before treatment. Inference on pre–treatment coefficients $\{\theta_{-3}, \theta_{-2}\}$ provides a direct check of parallel trends inside each matched sample.

All dynamic specifications mirror the baseline in covariates and fixed effects, and the same sample construction ensures that pre– and post–period comparisons are drawn within the matched groups defined for each deal type. Results are visualized as coefficient paths with pointwise confidence intervals; they are broadly consistent with the windowed DID estimates reported earlier.[7]

7 Main Results

7.1 Staged Selection: Establishing the Financial Anchor

The validity of the staged roll-up mechanism relies on the premise that platforms and add-ons play distinct roles within the portfolio. To test this, I examine the selection determinants across acquisition types using the logistic regression model specified in Equation 1.

The estimates reported in Table 4 reveal a selection strategy driven by financial capacity and turnaround potential. First, I document that private equity firms generally target hospitals with a specific "turnaround" profile characterized by strong unit economics but bottom-line distress. The coefficients for Operating Margin are positive and significant for both Platforms ($\beta = 1.33$) and Add-ons ($\beta = 1.08$), while ROA coefficients are negative. This suggests that sponsors identify targets where core clinical operations are sound, and value creation is predicated on rationalizing the cost structure that weighs down net income.

Second, sponsors distinguish between platforms and add-ons based on Leverage. Platforms are selected for low leverage ($\beta = -0.50$), maximizing the pledgeable collateral necessary to secure the syndicated credit facilities that fund the strategy. In contrast, add-ons are selected for high leverage ($\beta = 0.29$). These targets fit the profile of "distressed cash cows" that generate clinical margin but are weighed down by existing debt, requiring the platform's balance sheet for recapitalization.

Crucially, I decompose the add-on sample to address the concern that add-ons are simply inferior assets or "lemons" passed over during the platform phase. Columns 5 and 6 reveal that financing mode determines the risk profile of the target. Selection for Mode 1, or fund-financed acquisitions, is financially unremarkable. These targets show no significant selection on

[7] Estimates are robust to using the interaction–weighted estimator of Sun and Abraham (2021) with the same matched samples.

Operating Margin and only marginal selection on leverage and ROA. This implies that the pool of potential add-ons includes viable, standard targets that meet external lending criteria. In contrast, the "distressed" profile is concentrated entirely in the Mode 2, or platform-financed, group. Mode 2 targets are selected for very high Operating Margins ($\beta = 1.66$) but deep negative ROA ($\beta = -1.53$) and significant leverage.

This divergence suggests that the internal capital market is not passive but active. It is used specifically to absorb complex, highly levered turnarounds that external lenders would likely reject. The existence of standard Mode 1 targets confirms that the subsequent underperformance of Mode 2 is driven by this aggressive selection strategy rather than a fundamental exhaustion of investment opportunities.

7.2 Baseline Results

7.2.1 Financing Advantages and Cost of Capital

I begin by establishing the financing environment at the time of acquisition. Hypothesis H2 predicts that platform acquisitions trigger an immediate repricing of debt liabilities due to fresh underwriting against consolidated collateral, whereas add-ons, which are funded via existing credit facilities, do not receive a deal-specific repricing advantage.

To test this, I construct two measures from hospital cost reports: the effective rate on interest-bearing debt (r_{it}^{IB}), defined as interest expense divided by total interest-bearing debt (mortgages, notes, and unsecured loans), and the market-adjusted spread (s_{it}), defined as r_{it}^{IB} minus the three-month LIBOR rate. The latter isolates borrower-specific credit terms from aggregate funding conditions.

Table 5 presents difference-in-differences estimates for these outcomes. Consistent with H2, platforms experience a sharp and statistically significant reduction in financing costs immediately following the deal. In the short run (years 0–4), the effective rate on interest-bearing debt falls by 1.7 percentage points, and the LIBOR-adjusted spread narrows by approximately 170 basis points. This effect is concentrated at deal close, consistent with a recapitalization event that resets the cost of capital for the platform anchor.

In contrast, add-on acquisitions show no such advantage. In fact, their effective borrowing costs increase moderately in the short run, with spreads widening by approximately 230 basis points. This pattern is consistent with the institutional structure of roll-ups, where add-ons are funded as incremental draws on the platform's existing facility. Because add-ons do not trigger a fresh underwriting event for the whole group, they do not inherit the repricing benefit observed at the platform stage. Furthermore, upfront transaction fees (such as original issue discounts and arranger fees) associated with the incremental draw are often amortized through

interest expense, mechanically lifting the measured effective rate in the early post-acquisition years. These results establish a clear asymmetry: platforms enter the portfolio with a significant financing advantage, while add-ons enter under tighter local financial conditions.

7.2.2 Divergence in Post-Acquisition Profitability

Having established the financing environment, I next examine the evolution of operating performance. Table 6 reports estimates for Return on Assets (ROA), Operating Margin, and Operating Income over Assets (OI/TA).

The results reveal a stark divergence consistent with H3. Platform hospitals exhibit robust value creation that builds over time. In the short run (years 0–4), platform ROA increases by 6.2 percentage points. By the long run (years 5–8), this advantage widens to 15.3 percentage points, supported by a 5.9 percentage point increase in operating margins. This trajectory suggests that the initial financing advantage described above acts as a stable foundation for longer-term operational improvements.

Add-on hospitals follow the opposite trajectory. On average, add-ons experience a statistically significant decline in operating income over assets of 5.4 percentage points in the short run, with no significant recovery in the long run. The ROA estimates for add-ons are similarly negative or statistically indistinguishable from zero across specifications. This creates a puzzle: despite being part of the same roll-up strategy and theoretically benefiting from the economies of scale, add-on targets fail to generate operational value on average. The aggregate null result for add-ons, however, masks significant heterogeneity driven by the financing source.

7.2.3 The Screening Mechanism: Mode 1 vs. Mode 2

To resolve the puzzle of add-on stagnation, I decompose the restricted add-on sample by financing mode. As outlined in the conceptual framework, Mode 1 (Fund-Financed) deals require new external debt and face lender screening, while Mode 2 (Platform-Financed) deals utilize internal capacity and bypass deal-specific underwriting.

Table 7 presents the results relative to matched controls. The primary finding is the divergence between the two financing regimes. While the point estimates for Mode 1 (0.024) and Mode 2 (-0.034) are estimated with noise in isolation, they are statistically distinct from each other. A Wald test indicates that Mode 1 add-ons outperform Mode 2 add-ons by 5.8 percentage points, a difference that is economically large and statistically significant at the 10% level.

This result provides suggestive evidence that external lenders perform a screening function. The presence of a bank (Mode 1) appears to set a floor on deal quality. When that external

screen is removed (Mode 2), performance drops relative to the screened counterfactual. The fact that the average Mode 2 effect is not statistically distinguishable from zero is also instructive: it suggests that internal capital does not lead to uniform value destruction. Instead, the removal of lender discipline allows for a wider variance of outcomes, consistent with the hypothesis that agency costs are heterogeneous rather than universal (H3).

7.2.4 Testing the Collateral Channel: The Trap of Contractibility

Standard financial contracting theory posits that asset tangibility mitigates agency costs by securing the lender (Hart and Moore, 1994). In this framework, collateral acts as a substitute for active monitoring because it provides the creditor with a secured liquidation value that is independent of managerial effort. The threat of seizure imposes a binding limit on the borrower's resources, enforcing discipline on investment decisions. However, this mechanism relies on a critical assumption: the existence of an external creditor with the legal power and incentive to enforce the contract.

In Mode 2 (Platform-Financed) acquisitions, this external enforcer is structurally absent. When a platform funds an add-on using internal capacity, the transaction is an intra-firm allocation rather than a market contract. Without a creditor to enforce the threat of liquidation, the disciplinary function of collateral evaporates. A physical asset cannot discipline a manager if there is no counterparty to seize it. Consequently, the standard prediction that high collateral restores discipline in the absence of monitoring should fail in the Mode 2 setting.

Instead, the agency cost of free cash flow suggests a darker alternative. In the absence of a disciplining lender, high asset tangibility may exacerbate agency costs by serving as a "lure" for empire building (Jensen, 1986). This occurs because tangible assets are easily contractible and verifiable, whereas operational turnaround plans are "soft" and subjective. Managers can utilize the contractible nature of hard assets, such as buildings, medical equipment, and accounts receivable, to rationalize the acquisition of operationally inefficient targets to internal investment committees. In this scenario, tangibility creates a "trap of contractibility": the verifiable presence of collateral obscures the unobservable rot in the target's operational cash flows. If this "Empire Building" hypothesis (H4) holds, we should observe a reversal of the standard logic: value destruction should be concentrated precisely in the high-collateral targets that internal capital markets are most eager to fund.

I test these competing predictions by decomposing the treatment effect based on the target's ex-ante asset tangibility as specified in Equation 4. I classify targets as *High Tangibility* if their ratio of pledgeable assets (fixed assets, inventory, and accounts receivable) to total assets is above the sample median in the year prior to acquisition. This lag ensures that the classification reflects the collateral capacity observed by the sponsor at the time of selection, rather than ex-

post asset restructuring.

The results, reported in Table 8, strongly support the Empire Building hypothesis (H4) and reject the standard collateral substitution view. First, looking at Mode 1 (Fund-Financed) deals, the marginal treatment effects for both Low and High Tangibility subgroups are statistically indistinguishable from zero. This confirms that when an external lender is present, they impose a uniform screening standard that filters out negative-NPV projects regardless of asset mix.[8]

In sharp contrast, Mode 2 (Platform-Financed) deals exhibit severe heterogeneity driven by tangibility. For Low Tangibility targets, the coefficient is positive (0.027) and statistically insignificant. This indicates that internal capital markets function adequately when acquiring labor-intensive or asset-light practices. However, for High Tangibility targets, the coefficient is large, negative, and significant (-0.092, $t = -2.08$). The economic magnitude of this failure is substantial: a 9.2 percentage point decline in ROA relative to the control group implies a severe deterioration in operating efficiency. This result suggests that managers are effectively substituting "hard" assets for binding financial discipline. They use the platform's balance sheet to acquire asset-rich targets, but without the external pressure to generate cash flow to service deal-specific debt, these assets become a drag on performance rather than a safety net.

This heterogeneity explains the aggregate stagnation documented in Table 7. The average Mode 2 coefficient of zero is not evidence of neutrality, but rather a statistical artifact resulting from the cancellation between benign outcomes for asset-light targets and severe value destruction for asset-heavy ones. The difference between these two groups is statistically significant ($p = 0.014$). This confirms that without an external lender to police the valuation, hard assets do not provide discipline. Instead, they mask the purchase of "lemons," defined as asset-rich but cash-flow-poor targets, consistent with the agency costs of empire building.

7.2.5 Operational Consequences

The divergence in financial performance and screening discipline documented above has tangible operational consequences. Consistent with the view that platforms act as operational anchors, Table A1 shows that platforms achieve efficiency gains through "within-rule" revenue strategies. Post-acquisition, platforms exhibit a significant increase in their Case-Mix Index (CMI) and Medicare discharges without a corresponding increase in commercial prices. This suggests that value creation at the platform level is driven by the scale to invest in sophisticated revenue-cycle infrastructure (coding and documentation) rather than by price negotiation power.

[8]Banks typically screen borrowers based on the Debt Service Coverage Ratio (DSCR), defined as Net Operating Income divided by Total Debt Service. Even if a target has high collateral value, a bank will reject the loan if the target's cash flows are insufficient to meet the DSCR threshold. Internal capital markets lack this binding cash-flow constraint.

In contrast, the stagnation of add-ons manifests as contraction without efficiency. Table A2 reveals that add-on acquisitions are followed by significant reductions in both clinical and administrative staff. This pattern aligns with the empire building mechanism: sponsors use internal capital to acquire asset-heavy add-on targets (consistent with the high-tangibility findings in Table 8), then attempt to rationalize these purchases through blunt cost-cutting. However, as the negative ROA results confirm, these headcount reductions fail to offset the fundamental lack of synergy or operational viability. Finally, I find no consistent evidence that these financial and operational shifts come at the expense of clinical quality (Figure A2), though patient satisfaction scores show modest declines (Figure A3).

7.3 IV Results: CPOM Regulation Index

To address potential endogeneity in the decision to enter specific markets, I employ an instrumental variables (IV) strategy using the Corporate Practice of Medicine (CPOM) Regulation Index (Liu, 2022). Table 9 reports the first-stage estimates. The index proves to be a relevant instrument for platform entry ($F = 8.78$), but is statistically weak for Add-on acquisitions.

This divergence in instrument relevance strongly reinforces the "Anchor" mechanism proposed in this paper. Strict CPOM regulations create high fixed costs for establishing the initial corporate medical structure, such as employing physicians and integrating clinical operations. A lenient regulatory environment is therefore a critical precondition for establishing the platform, which serves as the legal and operational anchor. However, once this compliant structure is established, subsequent add-on acquisitions can be folded into the existing licensed entity, bypassing the initial regulatory hurdle. Just as add-ons bypass the financial screening of external debt markets (Mode 2), they also appear to bypass the regulatory friction of market entry. Consequently, the IV strategy effectively isolates the causal impact of the platform strategy but cannot identify the local average treatment effect for add-ons.

Turning to the second stage in Table 10, I estimate the causal effect of platform acquisition on operating performance. Across all specifications, ranging from hospital fixed effects to the full battery of county and hospital controls, instrumented platform exposure leads to a large and statistically significant increase in ROA. In the preferred specification with full controls, the coefficient for platform targets is positive and significant ($\beta = 1.027$, $t = 3.33$).

Regarding magnitudes, because the endogenous regressors are binary indicators, the two-stage procedure scales reduced-form effects by the first-stage slope,

$$\widehat{\beta}_{\text{2SLS}} = \frac{\widehat{\beta}_{\text{RF}}}{\widehat{\pi}},$$

so that modest first-stage coefficients convert small reduced-form changes in acquisition probabilities into the effect of a full transition from non-PE to PE ownership. The estimates are therefore local to hospitals whose platform status is influenced by CPOM variation.

IV results confirm that the performance advantage of platforms is causal and not merely an artifact of cherry-picking. This validates the foundation of the PE roll-up model: the strategy succeeds at the formation stage by creating profitable, compliant anchors. Consequently, the stagnation of add-ons observed in the baseline OLS estimates cannot be dismissed as a general failure of the private equity model itself, but rather represents a specific breakdown during the internal financing-driven expansion phase.

7.4 Dynamic Effects Model

To validate the timing of these effects and assess the parallel trends assumption, I estimate an event study centered on the acquisition year with three pre-acquisition years and six post-acquisition years. The model uses the matched sample and control set applied throughout the baseline analysis. Exact event-time indicators are constructed relative to the deal close, with the year prior to acquisition ($t = -1$) omitted as the reference group. Across all outcomes, the pre-period coefficients are statistically indistinguishable from zero and show no systematic trend, supporting the validity of the research design.

Figure 3 plots the dynamic effects for the primary financial and performance outcomes. The results for debt financing costs confirm the mechanism underlying H2: platform hospitals experience an immediate and sharp reduction in the market-adjusted spread ($r^{\text{IB}} - \text{LIBOR}$) at $t = 0$. The spread declines by over 200 basis points relative to controls in the first year and remains significantly negative throughout the post-period. This pattern is consistent with a structural repricing event where the platform's cost of capital is reset at origination. In contrast, add-ons show flat, noisy spreads with no evidence of repricing at any horizon, confirming that they do not receive a fresh underwriting advantage upon entry.

The profitability estimates illustrate the subsequent divergence in value creation (H3). For platforms, profitability gains materialize with a lag relative to the financing shock. Return on Assets (ROA) is stable in the first year but begins to rise in $t + 2$, reaching a statistically significant advantage of 7 to 10 percentage points by years 3 through 6. This lag suggests that the initial financing advantage ($t = 0$) provides the fiscal space for subsequent operational restructuring. Add-ons, however, display no systematic or sustained profitability improvements. Their coefficients hover near zero, reinforcing the conclusion that the platform's value creation engine does not scale to subsequent targets.

Figure 4 plots the operational outcomes. The results corroborate the divergence between

sophisticated within-rule revenue strategies and blunt contraction. Platforms successfully activate within-rule levers, with the Case-Mix Index (CMI) rising significantly by the second post-acquisition year and stabilizing at a higher level. This indicates a sustained shift toward higher-acuity coding and service lines, allowing platforms to optimize reimbursement under existing payment formulas. Add-ons show no comparable shift in revenue complexity.

The labor dynamics further distinguish the two strategies. Platforms execute a targeted restructuring: they reduce administrative staff early ($t = 1$) while preserving or modestly increasing core clinical headcount, consistent with the centralization of back-office functions to support growth. Add-ons, by contrast, rely on persistent and sizable reductions in core clinical staff, often exceeding 20%, without offsetting gains in efficiency or margins. This contractionary pattern marks a fundamental shift in the roll-up's lifecycle. While the platform phase is characterized by investment in capacity, the aggregate add-on phase exhibits the hallmarks of empire building: expanding the asset base through acquisition while shrinking the clinical core to subsidize the growth. This suggests that once the platform anchor is established, the strategy reverts to a logic of extraction rather than operational improvement.

Collectively, the event-time profiles delineate a clear sequence of value creation and destruction. The process begins with a financing shock at the platform stage, where collateral quality secures an immediate cost-of-capital advantage. This advantage anchors subsequent operational investments, including coding upgrades and administrative streamlining, that drive long-run profitability. When the strategy extends to add-ons, this sequence breaks. Without a commensurate financing shock, and weighed down by the prevalence of unscreened, internally financed targets, the aggregate operational playbook devolves into clinical contraction and value stagnation.[9]

7.5 Robustness Checks

I conduct two robustness exercises designed to ensure that the dynamic effects documented above are not artifacts of how the sample is constructed or how acquisitions are classified. The first concern is that baseline estimates might be influenced by uneven observation windows across hospitals. If treated hospitals drop out before or after acquisition, the estimated event-time profiles could partially reflect sample attrition rather than true post-acquisition dynamics. To address this, I re-estimate the event studies on a strictly balanced panel that requires hospitals to be observed in every year from three years before to six years after acquisition. The second concern is potential misclassification bias created by the finite observation window. Some acquisitions that appear as stand-alone during the sample period may in fact be early

[9]Results for the pooled PE sample and stand-alone hospitals are reported in Appendix Figure A4.

platforms whose add-ons occur just beyond the horizon. To bound this problem, I reclassify all stand-alone acquisitions as platforms and restrict the sample to platform and add-on hospitals. Together, these checks probe whether the baseline results hinge on data structure or definitional choices, rather than reflecting genuine treatment effects.

First, I re-estimate the event-study models on a strictly balanced panel that requires hospitals to be observed in every event year from three years before to six years after acquisition. The resulting profiles, reported in Appendix Figure A5, remain consistent with the baseline estimates. Platforms continue to show early repricing of debt spreads and profitability improvements, while add-ons primarily exhibit persistent reductions in core clinical staff absent profitability gains. The overall shape and direction of effects are unchanged, reinforcing the interpretation of the baseline dynamics.

Second, I reclassify all stand-alone acquisitions as platforms and restrict the sample to platform and add-on hospitals. The corresponding event-time profiles, shown in Figure A6, likewise corroborate the baseline results. Platforms still display repricing of debt costs and profitability gains with modest administrative staffing reductions, while add-ons continue to exhibit disproportionate and persistent declines in core clinical headcount with muted profitability changes. This exercise rules out the possibility that the platform and add-on contrast is an artifact of misclassifying censored early platforms as stand-alone.

8 Conclusion

This paper challenges the idea of a uniform, repeatable private equity playbook in the hospital industry. By reframing PE ownership as a staged financial sequence, the analysis demonstrates that value creation is fundamentally determined by the presence or absence of external governance at the time of investment. The core friction is that the initial platform investment, which is rigorously screened and financially optimized, creates the borrowing capacity for subsequent add-on acquisitions that systematically bypass market discipline.

The central message is that the success of the roll-up is conditional on maintaining the "hard budget constraint" of external debt. Three sets of results anchor this conclusion. First, I show that the selection of the platform is structurally engineered to serve as a financial anchor. Sponsors systematically target hospitals with low leverage and high gross margins to maximize pledgeable collateral, securing the scalable credit facilities necessary to fund future expansion. IV estimates using the Corporate Practice of Medicine (CPOM) index confirm that the resulting performance advantage is causal. Overcoming regulatory barriers to entry leads to robust improvements in profitability, demonstrating that platform value creation is real and not merely an artifact of favorable selection.

Second, the divergence in post-acquisition performance validates the governance role of the creditor. While platforms convert their financing advantage into sustained ROA gains, subsequent add-on acquisitions generally fail to replicate this success. Decomposing this result reveals that the outcomes depend critically on the financing structure. Externally screened (Mode 1) add-ons consistently preserve value across asset types, consistent with lenders filtering out downside risk. In contrast, internally financed (Mode 2) add-ons exhibit a sharp bifurcation. While stable on aggregate, this mean result masks a critical agency failure: value destruction is concentrated entirely in high-tangibility targets.

Crucially, this heterogeneity reveals the dark side of asset contractibility. The concentration of underperformance in asset-heavy targets overturns the standard view that collateral substitutes for monitoring. Instead, it supports the empire building hypothesis. In the absence of an external lender to enforce discipline, managers use the contractible nature of tangible assets to rationalize the acquisition of operationally inefficient targets. The tangible asset serves not as security, but as a lure.

Third, the operational consequences follow this financial logic. Platforms utilize financing gains to fund sophisticated "within-rule" strategies, such as revenue cycle optimization and administrative streamlining, while commercial prices remain stable. In contrast, add-ons, acquired without new underwriting, revert to blunt contraction. They exhibit persistent, sizeable reductions in core clinical staff without corresponding efficiency gains, consistent with the agency view that unscreened capital flows toward contractionary strategies that fail to generate fundamental value.

The implications extend to both practice and policy. The results provide novel empirical evidence for the governance role of external debt markets, demonstrating that the discipline provided by the underwriting process is essential to preserving asset quality. For regulators and antitrust authorities, treating private equity ownership as a monolith risks missing the locus of risk. Policy scrutiny should distinguish between the formation of the platform and the expansion of the portfolio. Disclosure mandates that track the evolution of the capital structure, specifically identifying acquisitions funded via internal credit draws versus fresh equity or external debt, would better identify where the discipline of the market has eroded. Ultimately, the evidence clarifies why the private equity roll-up playbook is difficult to scale: the model works when financing conditions enforce discipline, but breaks when internal capital markets allow that discipline to be bypassed.

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Table 1: Pre-Acquisition Hospital Statistics: PE-Acquired vs Never-Acquired

This table reports hospital-level means prior to the first private equity acquisition (PE-Acquired) and for hospitals that are never acquired (Never-Acquired), before any matching of control groups. For PE-Acquirer, each hospital contributes its average over years $t = -3$ to $t = -1$ relative to its first PE deal; Never-Acquired hospitals contribute their mean over all observed years. Column (1)–(2) reports differences tested with unequal-variance t tests (Welch). Significance levels are denoted by *, **, and *** for the 10%, 5%, and 1% levels.

Variable	(1) **PE-Acquired**	(2) **Never-Acquired**	**(1)–(2)**
Financing and Balance Sheet			
Rate on IB Debt	0.066	0.059	0.006*
Spread (IB–3m)	0.040	0.028	0.012***
Leverage Ratio	0.554	0.538	0.016
Capex/Assets	0.065	0.071	-0.006***
IB Debt/Assets	0.173	0.175	-0.002
Non-IB Liabilities/Assets	0.371	0.329	0.042**
IB Debt Share	0.289	0.316	-0.027*
Profitability			
Operating Margin	0.013	-0.220	0.232***
Operating Income/Assets (OI/TA)	0.053	-0.109	0.162***
ROA	0.072	0.015	0.057***
Operations and Revenues			
Log(Cost per Adj. Discharge)	9.142	9.026	0.116***
Log(Total Cost)	17.580	17.153	0.426***
Log(Adjusted Discharges)	8.363	8.079	0.284***
Case-Mix and CMI Adjusted			
CMI	1.465	1.345	0.120***
Log(Medicare Discharges, CMI-adj)	7.772	6.808	0.964***
Log(Medicare Inpatient Costs, CMI-adj)	16.482	15.506	0.976***
Log(Non-Medicare Price, CMI-adj)	8.592	8.471	0.121***
Employment and Wages			
Log(Total Employment)	5.782	5.697	0.085*
Log(Core Employment)	3.629	3.134	0.495***
Log(Admin Employment)	3.606	3.450	0.155**
Log(Total Salary)	16.803	16.506	0.297***
Log(Core Wage)	8.713	7.961	0.753***
Log(Admin Wage)	11.054	10.853	0.201***
Hospital Characteristics and Demographics			
Total Beds	133.156	113.382	19.774***
% Medicare	0.472	0.449	0.023***
% Medicaid	0.100	0.109	-0.009*
% Outpatient	0.350	0.431	-0.081***
% Asian	0.034	0.030	0.004**
% Black	0.147	0.121	0.026***
1BR Rent (County,$)	630.336	603.180	27.156***
Hospital Count	848	5642	
Deal Count	269		

Table 2: Pre-Acquisition Hospital Statistics by PE acquisition type

Hospitals are grouped by their acquisition type under private equity ownership: Stand-alone, Platform, and Add-on. For each hospital, variables are averaged over the three years prior to its first PE deal (years $t = -3$ to $t = -1$). Columns (1)–(2), (2)–(3), and (1)–(3) report differences tested with unequal-variance t tests (Welch). Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Variable	(1) Stand-alone	(2) Platform	(3) Add-on	(1)–(2)	(2)–(3)	(1)–(3)
Financing and Balance Sheet						
Rate on IB Debt	0.073	0.084	0.063	-0.011	0.021**	0.011
Spread (IB–3m)	0.064	0.063	0.032	0.001	0.031***	0.032*
Leverage Ratio	0.790	0.181	0.576	0.609***	-0.395***	0.214
Capex/Assets	0.089	0.064	0.061	0.025	0.002	0.027
IB Debt/Assets	0.220	0.148	0.200	0.072	-0.052**	0.020
Non-IB Liabilities/Assets	0.564	0.361	0.390	0.203	-0.029	0.174
IB Debt Share	0.308	0.268	0.323	0.040	-0.055	-0.015
Profitability						
Operating Margin	-0.003	0.045	-0.030	-0.047	0.075***	0.027
OI/TA	0.159	0.107	-0.037	0.052	0.144***	0.196***
ROA	0.223	0.098	0.009	0.125**	0.089***	0.214***
Operations and Revenues						
Log(Avg.Cost/Adj.Discharge)	9.451	9.141	9.137	0.310**	0.004	0.314**
Log(Total Cost)	16.896	17.752	17.494	-0.855***	0.258***	-0.597***
Log(Adjusted Discharges)	7.431	8.507	8.340	-1.076***	0.167	-0.909***
Case-Mix and CMI Adjusted						
CMI	1.722	1.467	1.442	0.255	0.025	0.280*
Log(Medicare Discharges, CMI-adj)	6.976	7.771	7.834	-0.795	-0.063	-0.858*
Log(Medicare Inpatient Costs, CMI-adj)	16.077	16.475	16.524	-0.398	-0.049	-0.447
Log(Non-Medicare Price, CMI-adj)	8.604	8.687	8.460	-0.083	0.228***	0.144
Employment and Wages						
Log(Core Employment)	2.734	3.550	3.833	-0.816*	-0.284**	-1.100**
Log(Admin Employment)	3.817	3.451	3.832	0.366	-0.380***	-0.015
Log(Core Wage)	8.479	8.560	9.000	-0.082	-0.440	-0.522
Log(Admin Wage)	11.009	11.122	10.948	-0.113	0.174***	0.062
Hospital Characteristics and Demographics						
Total Beds	72.401	143.634	130.436	-71.233***	13.198	-58.035***
%Medicare	0.520	0.478	0.454	0.042	0.024	0.065
%Medicaid	0.038	0.098	0.116	-0.060***	-0.017*	-0.077***
%Outpatient	0.218	0.351	0.371	-0.134***	-0.020	-0.153***
%Asian	0.047	0.038	0.027	0.009	0.012***	0.021***
%Black	0.126	0.157	0.136	-0.030*	0.021*	-0.009
1BR Rent (County,$)	744.217	631.453	608.075	112.763***	23.379	136.142***
Hospital Count	63	469	316			
Deal Count	27	65	199			

Table 3: Summary Statistics For the Matched Sample

This table presents the summary statistics for the key variables utilized in this study. The sample includes observations from both target and control hospitals during the three years preceding and following their acquisition. The matched sample is constructed by pairing each PE-owned hospital with up to three control hospitals using the optimal Mahalanobis method.

Variable	Obs	Mean	P25	P50	P75	SD
Financing and Balance Sheet						
Rate on IB Debt	1,803	0.063	0.035	0.053	0.077	0.042
Spread (IB–3m)	1,803	0.043	0.012	0.037	0.061	0.045
Leverage Ratio	7,278	0.428	0.152	0.485	0.786	0.601
Capex/Assets	6,385	0.070	0.030	0.052	0.089	0.057
IB Debt/Assets	6,267	0.160	0.000	0.005	0.265	0.228
Non-IB Liabilities/Assets	6,243	0.349	0.091	0.245	0.498	0.346
IB Debt Share	5,435	0.291	0.000	0.118	0.578	0.322
Profitability						
Operating Margin	10,332	0.021	-0.049	0.031	0.127	0.213
OI/TA	8,696	0.051	-0.065	0.029	0.177	0.316
ROA	8,729	0.087	-0.023	0.056	0.181	0.267
Operations and Revenues						
Log(Avg.Cost/Adj.Discharge)	7,754	9.056	8.686	8.978	9.319	0.553
Log(Total Cost)	8,391	17.737	16.770	17.805	18.676	1.203
Log(Adjusted Discharges)	8,219	8.725	7.881	8.992	9.733	1.312
Case-Mix and CMI Adjusted						
CMI	7,035	1.513	1.278	1.485	1.671	0.358
Log(Medicare Discharges, CMI-adj)	7,033	7.887	7.225	8.076	8.780	1.265
Log(Medicare Inpatient Costs, CMI-adj)	7,032	16.620	15.883	16.810	17.560	1.262
Log(Non-Medicare Price, CMI-adj)	6,926	8.619	8.370	8.664	8.914	0.539
Employment and Wages						
Log(Core Employment)	8,569	3.927	2.965	4.213	5.166	1.629
Log(Admin Employment)	7,490	3.864	3.223	3.912	4.595	1.159
Log(Core Wage)	8,455	9.532	10.263	10.735	11.092	3.335
Log(Admin Wage)	7,313	10.992	10.764	10.989	11.195	0.602
Hospital Characteristics and Demographics						
Total Beds	8,880	146.618	49.000	108.000	202.000	143.520
%Medicare	10,382	0.453	0.304	0.419	0.588	0.211
%Medicaid	10,382	0.102	0.013	0.067	0.156	0.114
%Outpatient	8,116	0.383	0.260	0.394	0.523	0.207
%Asian	9,607	0.035	0.010	0.024	0.046	0.039
%Black	9,607	0.153	0.048	0.109	0.214	0.142
1BR Rent (County,$)	9,607	655.224	515.000	622.000	744.000	210.789

Table 4: Logit Regression Results: Probability of PE Acquisition

This table presents logistic regression estimates of the probability of acquisition. The dependent variable is an indicator equal to one in the acquisition year. Columns distinguish between all PE acquisitions, subsets defined by deal type (Standalone, Platform, Add-on), and financing mode within add-ons (Mode 1 vs. Mode 2). Key independent variables include lagged leverage, lagged operating margin (Net Patient Revenue – Total Operating Expense / Net Patient Revenue), and lagged ROA (Net Income / Total Assets). Standard errors are clustered at the hospital level. z-statistics are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	Dependent variable: Acquisition Indicator					
	(1) PE Target	(2) Standalone	(3) Platform	(4) Add-on	(5) Mode 1	(6) Mode 2
Leverage ($L1.$)	-0.306^{***}	0.058	-0.502^{***}	0.291^{**}	0.254^{*}	0.318^{**}
	(-6.04)	(0.52)	(-9.58)	(2.48)	(1.85)	(1.98)
Operating Margin ($L1.$)	0.949^{***}	-0.114	1.327^{***}	1.084^{***}	0.496	1.662^{***}
	(2.81)	(-0.25)	(2.66)	(3.13)	(1.36)	(3.44)
ROA ($L1.$)	-0.844^{***}	1.145	-0.615^{*}	-1.407^{***}	-1.276^{*}	-1.527^{***}
	(-3.03)	(1.44)	(-1.85)	(-3.50)	(-1.66)	(-3.42)
Observations	80,195	79,752	80,016	79,931	79,788	79,835
Pseudo R^2	0.036	0.183	0.063	0.031	0.039	0.036
Hospital Controls	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y

Table 5: Cost of Debt and Spread After PE Acquisition

This table reports difference-in-differences (DID) estimates of the effect of PE acquisition on measures of debt pricing. Each row shows the coefficient on a post-acquisition indicator interacted with the deal type, i.e., *Stand-alone* (a target acquired that is not part of a roll-up), *Platform* (a new platform acquisition), and *Add-on* (a target added to an existing platform). Columns report effects in the first four years after PE entry and in years five to eight. Outcomes are: Cost of Debt, defined as interest expense divided by interest-bearing liabilities; and Spread (vs 3-month LIBOR), defined as the difference between the effective borrowing rate and the 3-month LIBOR benchmark. The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing the effects between (1) Stand-alone×Post, (2) Platform×Post, and (3) Add-on×Post. The specification includes hospital fixed effects, event-time fixed effects, and match-ID fixed effects; hospital-level controls (log beds, Medicare share, Medicaid share, outpatient share, case mix index); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are two-way clustered by hospital and match-ID. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	Cost of Debt		Spread	
Post-Deal Window	[0,4]	[5,8]	[0,4]	[5,8]
(1) Stand-alone	0.0134	−0.0387**	0.0049	−0.0651***
	(0.39)	(−1.99)	(0.15)	(−3.35)
(2) Platform	−0.0169**	−0.0023	−0.0165**	−0.0006
	(−2.02)	(−0.16)	(−2.13)	(−0.04)
(3) Add-on	0.0184**	0.0036	0.0234***	0.0092
	(2.45)	(0.34)	(2.78)	(0.69)
Observations	3,976	3,981	3,976	3,981
Adj. R^2	0.478	0.467	0.504	0.494
H_0^{A}: (1) = (2)	0.389	0.124	0.519	0.123
H_0^{B}: (2) = (3)	0.001	0.735	0.000	0.735
H_0^{C}: (1) = (3)	0.885	0.056	0.580	0.056
Hospital Controls	Y	Y	Y	Y
County Controls	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y

Table 6: Profitability After PE Acquisition

This table reports DID estimates of the effect of PE acquisition on hospital profitability outcomes. Each row shows the coefficient on a post-acquisition indicator interacted with the deal type, i.e., *Stand-alone* (a target acquired that is not part of a roll-up), *Platform* (a new platform acquisition), and *Add-on* (a target added to an existing platform). Columns report effects in the first four years after PE entry and in years five to eight. Outcomes are: operating margin, operating income over total assets (OI/TA), and return on assets (ROA). The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing the effects between (1) Stand-alone×Post, (2) Platform×Post, and (3) Add-on×Post. The specification includes hospital fixed effects, event-time fixed effects, and match-ID fixed effects; hospital-level controls (log beds, Medicare share, Medicaid share, outpatient share, case mix index); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are two-way clustered by hospital and match-ID. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	Operating Margin		OI/TA		ROA	
Post-Deal Window	[0–4]	[5–8]	[0–4]	[5–8]	[0–4]	[5–8]
(1) Stand-alone	-0.030	-0.076	0.050	-0.026	0.100	-0.026
	(-0.40)	(-0.97)	(0.46)	(-0.26)	(0.94)	(-0.30)
(2) Platform	0.002	0.059***	0.035*	0.133***	0.062***	0.153***
	(0.13)	(3.77)	(1.71)	(5.27)	(3.06)	(6.60)
(3) Add-on	-0.005	0.013	-0.054**	0.002	-0.026	0.013
	(-0.35)	(0.64)	(-2.24)	(0.08)	(-1.19)	(0.48)
H_0^A: (1) = (2)	0.681	0.094	0.889	0.124	0.724	0.048
H_0^B: (2) = (3)	0.682	0.030	0.002	0.000	0.002	0.000
H_0^C: (1) = (3)	0.736	0.273	0.342	0.788	0.241	0.669
Adj. R^2	0.421	0.419	0.426	0.452	0.452	0.477
Observations	11,374	11,849	11,374	11,849	11,374	11,849
Hospital Controls	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y	Y	Y

Table 7: Return on Assets after Add-on Acquisition by Financing Mode

This table estimates the effect of Private Equity (PE) add-on acquisitions on hospital Return on Assets (ROA), distinguishing between financing modes. The sample is strictly restricted to add-on acquisitions and their matched control hospitals (excluding all platform and stand-alone treatments and their associated controls). Columns (1)–(4) present results from this restricted sample DID specification. The key independent variables are Mode 1 × Post (Fund-Financed) and Mode 2 × Post (Platform-Financed). The row labeled "H_0 : Mode 1 = Mode 2" reports the p-value from a Wald Chi-square test of the equality of the two coefficients. All specifications include hospital and match-ID fixed effects. Standard errors are two-way clustered by hospital and match-ID. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	Dependent variable: ROA			
	(1) Baseline	(2) +Event FE	(3) +County Ctrls	(4) +Hosp Ctrls
Mode 1 × Post	0.012	0.023	0.022	0.024
	(0.52)	(0.90)	(0.87)	(0.96)
Mode 2 × Post	-0.049*	-0.038	-0.040	-0.034
	(-1.70)	(-1.24)	(-1.35)	(-1.17)
H_0 : Mode 1 = Mode 2	0.087	0.090	0.081	0.094
Adj. R^2	0.303	0.311	0.316	0.322
Observations	5,901	5,901	5,901	5,901
Hospital Controls	N	N	N	Y
County Controls	N	N	Y	Y
Event-time FE	N	Y	Y	Y
Hospital FE	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y

Table 8: Heterogeneous Effects of Financing Mode by Asset Tangibility

This table estimates the heterogeneous effects of add-on acquisitions on ROA by interacting financing mode with target asset tangibility. The sample is strictly restricted to add-on acquisitions and their matched controls. *High Tangibility* is a time-invariant indicator equal to one if the target's pre-acquisition ratio of Pledgeable Assets (Fixed Assets + Inventory + A/R) to Total Assets is above the sample median. Columns (1)–(4) report results from this restricted sample DID specification. The row labeled "H_0 : M2 High = M2 Low" reports the p-value from a Wald Chi-square test of the equality of the Mode 2 High and Mode 2 Low coefficients. Standard errors are two-way clustered by hospital and match-ID. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	Dependent variable: ROA			
	(1) Baseline	(2) +Event FE	(3) +County Ctrls	(4) +Hosp Ctrls
Mode 1 × Low Tangibility	0.022	0.033	0.031	0.034
	(0.86)	(1.23)	(1.16)	(1.25)
Mode 1 × High Tangibility	-0.008	0.002	0.005	0.006
	(-0.16)	(0.05)	(0.10)	(0.12)
Mode 2 × Low Tangibility	0.013	0.025	0.022	0.027
	(0.52)	(0.92)	(0.82)	(1.01)
Mode 2 × High Tangibility	-0.110**	-0.099**	-0.099**	-0.092**
	(-2.45)	(-2.13)	(-2.20)	(-2.08)
H_0 : M2 High = M2 Low	0.014	0.013	0.013	0.014
Adj. R^2	0.307	0.315	0.320	0.325
Observations	5,901	5,901	5,901	5,901
Hospital Controls	N	N	N	Y
County Controls	N	N	Y	Y
Event-time FE	N	Y	Y	Y
Hospital FE	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y

Table 9: First-Stage Regression: CPOM Regulation Index and PE Acquisition Types

Each column reports the first-stage regression of the indicated PE acquisition indicator on the CPOM Regulation Index (higher = more lenient). All specifications include hospital-level controls (log beds, Medicare share, Medicaid share, outpatient share, CMI), county controls (log population, log fair market rent, Black share, Asian share), plus fixed effects for hospital and year. "KP F-stat" is the Kleibergen–Paap rk Wald F statistic (compare to Stock–Yogo critical values). "LM p-value" is from the Kleibergen–Paap rk LM test of underidentification. Standard errors are clustered by provider. t-statistics are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

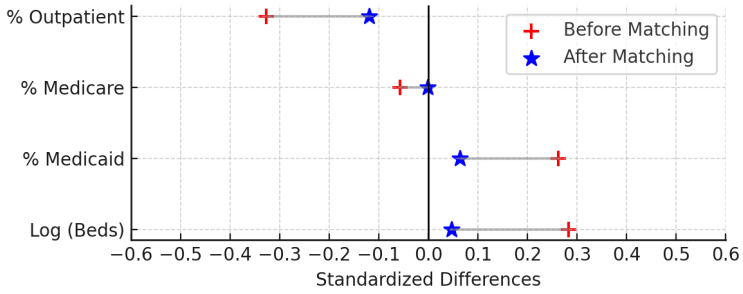
	Dependent variable: Acquisition Indicator			
	(1) PE Target	(2) Stand-alone	(3) Platform	(4) Add-on
CPOM Index	0.0123**	0.0005	0.0093***	0.0025
	(3.10)	(0.35)	(2.96)	(1.15)
KP F-stat (Wald F)	9.60	0.12	8.78	1.33
LM p-value (under-ID)	0.002	0.725	0.004	0.249
Adj. R^2	0.818	0.417	0.874	0.771
Observations	15,519	15,519	15,519	15,519
Hospital Controls	Y	Y	Y	Y
County Controls	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y

Table 10: Second-Stage IV Estimates: ROA

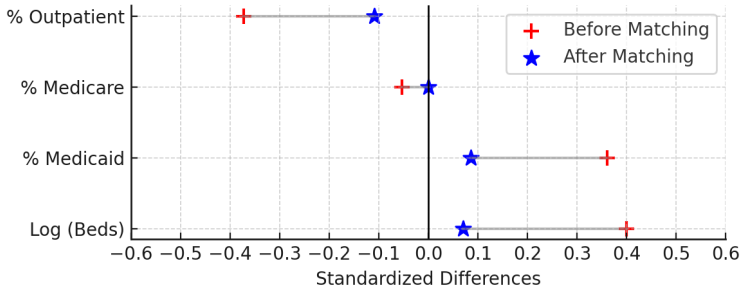
Second-stage IV estimates using the CPOM Regulation Index as an instrument; first-stage results are reported in Table 9. Each panel reports results from a separate regression using the unmatched sample of hospitals. Dependent variable is: *return on assets (ROA)*. Hospital controls (log beds, Medicare share, Medicaid share, outpatient share, CMI), county controls (log population, log fair market rent, Black share, Asian share), hospital fixed effects, and year fixed effects are included depending on the specification as indicated in the table. Standard errors are clustered at the provider level. t-statistics are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	Dependent variable: ROA			
	(1) Hosp FE	(2) + Year FE	(3) + County controls	(4) + Hospital controls
Panel A: PE Target				
PE	0.509***	0.881***	0.752***	0.759***
	(5.83)	(4.01)	(3.92)	(4.42)
Hospital controls	N	N	N	Y
County controls	N	N	Y	Y
Year FE	N	Y	Y	Y
Hospital FE	Y	Y	Y	Y
Observations	17,143	17,143	15,700	15,700
Panel B: Platform Target				
Platform	0.808***	1.126**	1.011**	1.027**
	(4.07)	(3.12)	(3.04)	(3.33)
Hospital controls	N	N	N	Y
County controls	N	N	Y	Y
Year FE	N	Y	Y	Y
Hospital FE	Y	Y	Y	Y
Observations	17,143	17,143	15,700	15,700

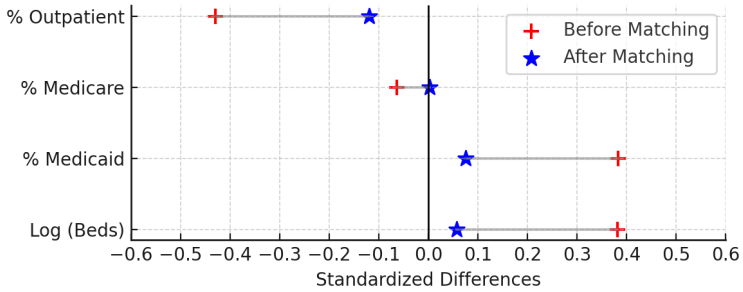
Figure 1. Balance Test after Mahalanobis Matching



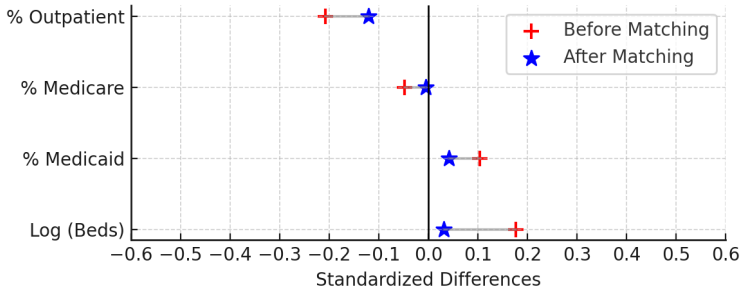
(a) *Overall*



(b) *Stand-alone*



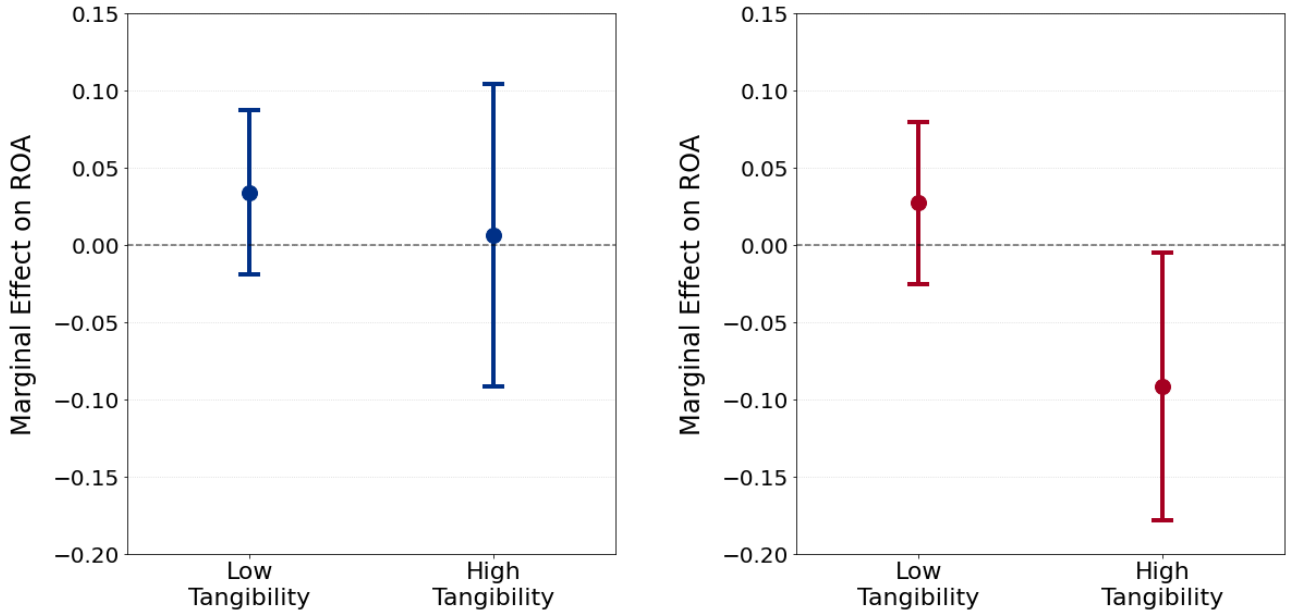
(c) $Platform$



(d) *Add-on*

Figure 2. Marginal Effects of PE Acquisition by Financing Mode and $Tangibility_{t-1}$

This figure presents the estimated marginal effects of Private Equity (PE) add-on acquisitions on hospital Return on Assets (ROA), contrasting Fund-Financed (Mode 1) and Platform-Financed (Mode 2) transactions. Heterogeneity is evaluated using a binary indicator for High vs. Low Tangibility, where High Tangibility represents hospitals with a pre-acquisition ($t-1$) ratio of Pledgeable Assets (defined as the sum of Net Property, Plant, and Equipment, Inventory, and Accounts Receivable) to Total Assets above the sample median. Panel (a) illustrates the marginal effects for Mode 1 acquisitions. Panel (b) illustrates the marginal effects for Mode 2 acquisitions. All specifications include hospital controls (log beds, Medicare share, Medicaid share, outpatient share, Case Mix Index), county controls (log population, log FMR, black %, asian %), hospital fixed effects, match-group fixed effects, and event-time fixed effects. 95% confidence intervals are based on robust standard errors two-way clustered at the hospital and match-ID levels.



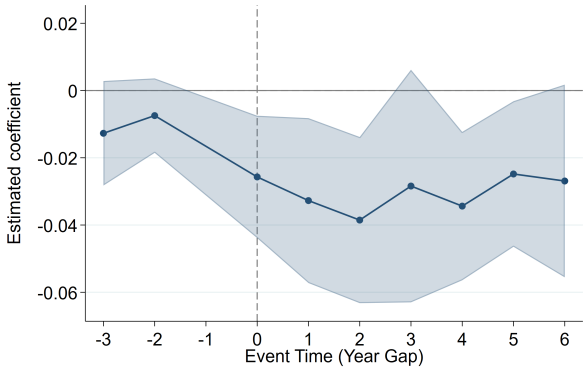
(a) Mode 1 (Fund-Financed)

(b) Mode 2 (Platform-Financed)

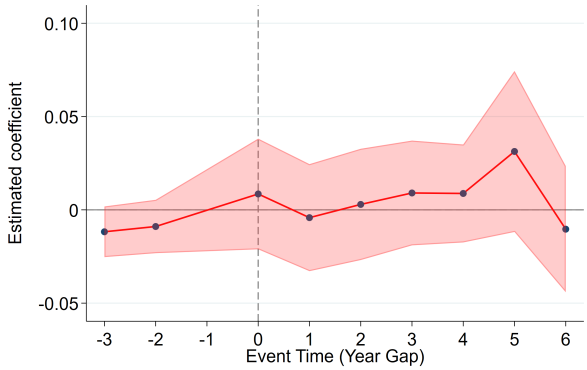
Figure 3. Dynamic Effects on Financing and Profitability

This figure plots event-study coefficients with two-way clustered standard errors (provider and match group) for five outcomes: return on assets (ROA), debt financing spread (IB - 3m), Medicare case-mix index (CMI), core employment, and administrative employment. All specifications include hospital controls (log beds, Medicare share, Medicaid share, outpatient share), county controls (log population, log FMR, Black share, Asian share), and fixed effects for provider, year-gap, and match group. The omitted event time is $F1$ (one year before).

Outcome: Debt Financing Spread (IB - 3m)

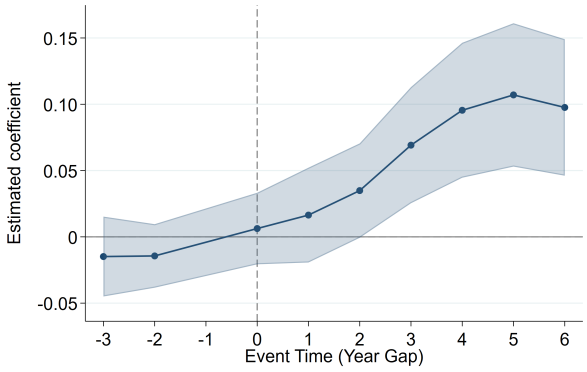


(a) Platform

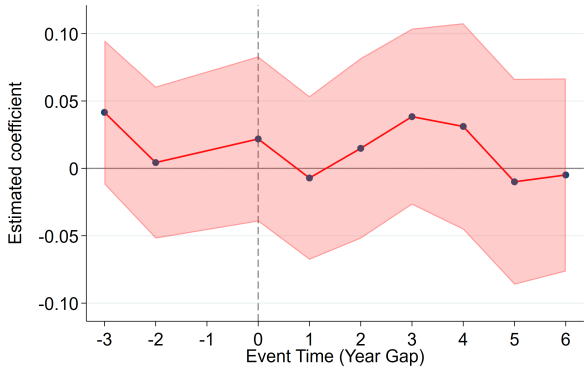


(b) Add-on

Outcome: Return on Assets (ROA)



(c) Platform

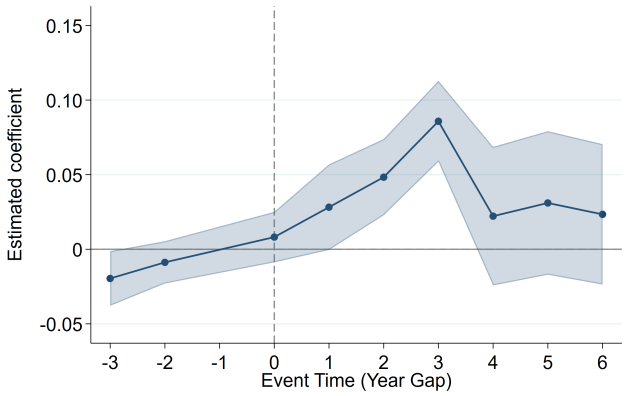


(d) Add-on

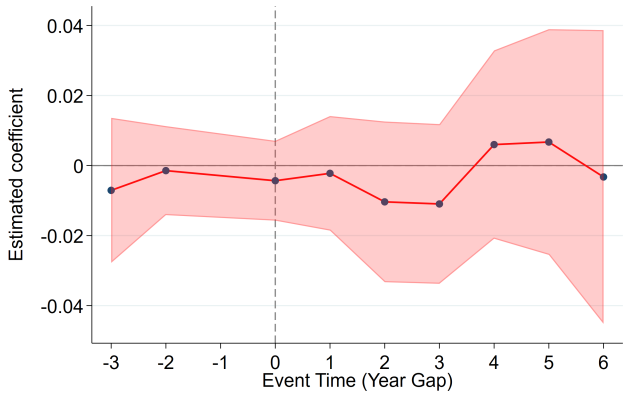
Figure 4. Dynamic Effects on Operational Outcomes

This figure plots event-study estimates for operational outcomes: the Case-Mix Index (CMI), Core Clinical Employment (logs), and Administrative Employment (logs). Specifications are consistent with the event studies in Figure 3.

Outcome: Medicare Case-Mix Index (CMI)

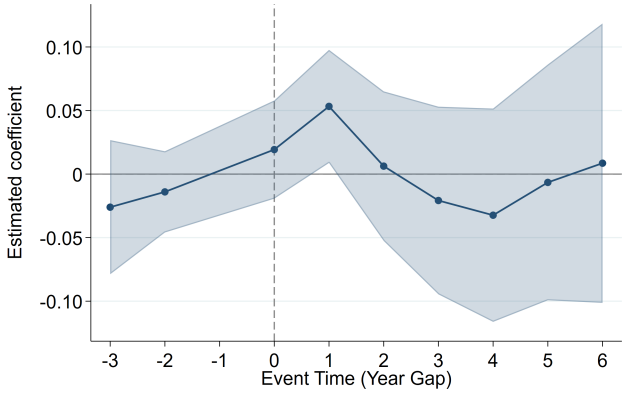


(a) Platform

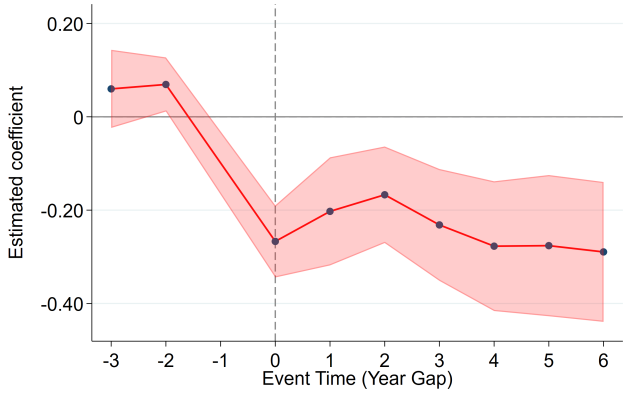


(b) Add-on

Outcome: Core Clinical Employment (Logs)

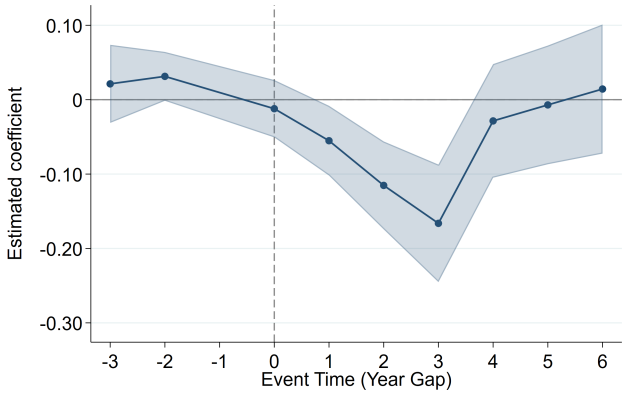


(c) Platform

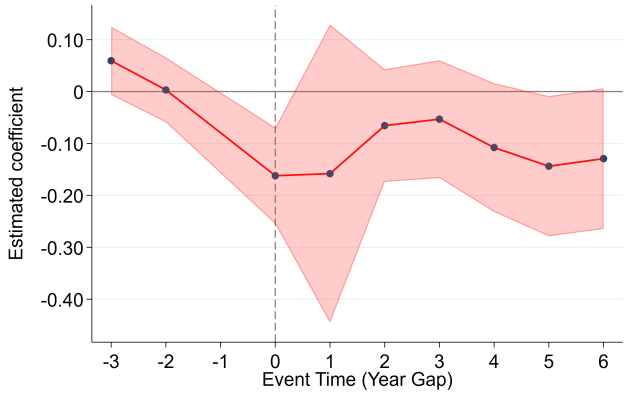


(d) Add-on

Outcome: Administrative Employment (Logs)



(e) Platform



(f) Add-on

Appendix A: Supplementary Tables and Figures

Table A1: Case-Mix and Medicare Outcomes After PE Acquisition

This table reports DID estimates of the effect of PE acquisition on case mix and Medicare outcomes. Each row shows the coefficient on a post-acquisition indicator interacted with the deal type, i.e., *Stand-alone* (a target acquired that is not part of a roll-up), *Platform* (a new platform acquisition), and *Add-on* (a target added to an existing platform). Columns report effects in the first four years after PE entry and in years five to eight. Outcomes are: log case-mix index (CMI), log Medicare discharges, log Medicare inpatient cost, and log non-Medicare price per discharge. The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing the effects between (1) Stand-alone×Post, (2) Platform×Post, and (3) Add-on×Post. The specification includes hospital fixed effects, event-time fixed effects, and match-ID fixed effects; hospital-level controls (log beds, Medicare share, Medicaid share, outpatient share); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are two-way clustered by hospital and match-ID. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

			CMI Adjusted					
	Log(CMI)		Log(Med. Disc.)		Log(Med. Inpat. Cost)		Log(Non-Med. Price)	
Post-Deal Window	[0,4]	[5,8]	[0,4]	[5,8]	[0,4]	[5,8]	[0,4]	[5,8]
(1) Stand-alone	−0.040	−0.019	−0.214	0.015	−0.185	−0.001	0.132	−0.113
	(−0.94)	(−0.52)	(−0.79)	(0.10)	(−0.73)	(−0.01)	(0.67)	(−1.10)
(2) Platform	0.018**	0.034***	0.042	0.211***	0.074***	0.177***	−0.008	−0.057
	(2.25)	(4.61)	(1.46)	(4.68)	(2.81)	(4.42)	(−0.28)	(−1.38)
(3) Add-on	−0.025***	−0.040***	−0.155***	−0.107*	−0.172***	−0.175***	−0.028	−0.069
	(−2.71)	(−3.72)	(−3.40)	(−1.81)	(−4.64)	(−3.09)	(−0.60)	(−0.95)
H_0^A: (1) = (2)	0.1882	0.1518	0.3430	0.2004	0.3072	0.3773	0.4842	0.6012
H_0^B: (2) = (3)	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.6854	0.8747
H_0^C: (1) = (3)	0.7379	0.5717	0.8338	0.4372	0.9613	0.3971	0.4282	0.7073
Observations	8,420	8,904	8,420	8,904	8,420	8,904	8,420	8,904
Adj. R^2	0.789	0.831	0.960	0.957	0.965	0.963	0.693	0.676
Hospital Controls	Y	Y	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y	Y	Y	Y	Y

Table A2: Hospital Staffing and Wages After PE Acquisition

This table reports DID estimates of employment and wage outcomes following PE hospital acquisitions. Panel A shows effects on employment levels for core clinical and administrative staff, and Panel B on average hourly wages for those categories. Columns report effects in the first four years after PE entry and in years five to eight. The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing the effects between (1) Stand-alone×Post, (2) Platform×Post, and (3) Add-on×Post. Regressions include hospital fixed effects, year fixed effects, and hospital and county controls. Standard errors are clustered at the hospital level. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: Employment				
	Log(Emp Core)		Log(Emp Admin)	
Post-Deal Window	[0–4]	[5–8]	[0–4]	[5–8]
(1) Stand-alone	-0.310*	0.080	-0.116	-0.085
	(-1.82)	(0.33)	(-0.66)	(-0.61)
(2) Platform	0.154***	0.127**	-0.259***	-0.157***
	(3.56)	(2.29)	(-5.82)	(-3.21)
(3) Add-on	-0.250***	-0.292***	-0.210***	-0.141**
	(-4.08)	(-3.17)	(-3.74)	(-2.05)
H_0^A: (1) = (2)	0.008	0.847	0.424	0.615
H_0^B: (2) = (3)	0.000	0.000	0.437	0.813
H_0^C: (1) = (3)	0.739	0.144	0.616	0.714
Adj. R^2	0.891	0.877	0.777	0.787
Observations	11,395	11,878	11,395	11,878
Panel B: Hourly Wage				
	Log(Wage Core)		Log(Wage Admin)	
Post-Deal Window	[0–4]	[5–8]	[0–4]	[5–8]
(1) Stand-alone	-0.048	-0.168**	-0.024	-0.017
	(-0.53)	(-2.04)	(-0.57)	(-0.21)
(2) Platform	-0.201***	-0.117***	0.159***	0.169***
	(-5.61)	(-3.05)	(9.35)	(7.79)
(3) Add-on	0.029	0.011	0.054	0.015
	(0.79)	(0.22)	(1.33)	(0.50)
H_0^A: (1) = (2)	0.093	0.513	0.000	0.022
H_0^B: (2) = (3)	0.000	0.016	0.012	0.000
H_0^C: (1) = (3)	0.408	0.045	0.168	0.705
Adj. R^2	0.540	0.536	0.476	0.575
Observations	11,395	11,878	11,395	11,878
Hospital Controls	Y	Y	Y	Y
County Controls	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y

Table A3: Balance Sheet Structure, Investment, and Liquidity After PE Acquisition

This table reports DID estimates of the effect of private equity (PE) acquisition on balance sheet outcomes. Each row shows the coefficient on a post-acquisition indicator interacted with the deal type, i.e., *Stand-alone* (a target acquired that is not part of a roll-up), *Platform* (a new platform acquisition), and *Add-on* (a target added to an existing platform). Columns report effects in the first four years after PE entry and in years five to eight. Outcomes are: leverage (Liab/TA), capital expenditures to total assets (Capex/TA), and cash holdings to total assets (Cash/TA). The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing the effects between (1) Stand-alone×Post, (2) Platform×Post, and (3) Add-on×Post. The specification includes hospital fixed effects, event-time fixed effects, and match-ID fixed effects; hospital-level controls (log beds, Medicare share, Medicaid share, outpatient share, case mix index); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are two-way clustered by hospital and match-ID. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	Leverage		Capex/TA		Cash/TA	
Post-Deal Window	[0,4]	[5,8]	[0,4]	[5,8]	[0,4]	[5,8]
(1) Stand-alone	0.043	0.377*	0.036*	0.039	−0.000	0.034
	(0.31)	(1.71)	(1.72)	(1.45)	(−0.02)	(0.92)
(2) Platform	−0.157***	−0.275***	0.017***	0.034***	−0.002	0.003
	(−3.20)	(−4.50)	(3.76)	(6.22)	(−0.75)	(0.77)
(3) Add-on	0.136***	0.033	0.011	0.005	−0.011**	−0.015**
	(2.65)	(0.43)	(1.52)	(0.62)	(−2.32)	(−2.10)
Observations	10,415	10,938	10,415	10,938	10,415	10,938
Adj. R^2	0.628	0.640	0.061	0.103	0.554	0.555
H_0^A: (1) = (2)	0.156	0.004	0.369	0.000	0.483	0.102
H_0^B: (2) = (3)	0.000	0.000	0.616	0.000	0.000	0.000
H_0^C: (1) = (3)	0.528	0.146	0.292	0.198	0.528	0.146
Hospital Controls	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y	Y	Y

Table A4: Capital Structure and Liability Mix After PE Acquisition

This table reports DID estimates of the effect of PE acquisition on hospital capital structure and liability mix. Each row shows the coefficient on a post-acquisition indicator interacted with the deal type, i.e., *Stand-alone* (a target acquired that is not part of a roll-up), *Platform* (a new platform acquisition), and *Add-on* (a target added to an existing platform). Columns report effects in the first four years after PE entry and in years five to eight. Outcomes are: interest-bearing debt to total assets (IB Debt/TA), non-interest-bearing liabilities to total assets (NIBL/TA), and the share of interest-bearing debt in total liabilities (IB Debt/TL). The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing the effects between (1) Stand-alone×Post, (2) Platform×Post, and (3) Add-on×Post. The specification includes hospital fixed effects, event-time fixed effects, and match-ID fixed effects; hospital-level controls (log beds, Medicare share, Medicaid share, outpatient share, case mix index); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are two-way clustered by hospital and match-ID. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	IB Debt/TA		NIBL/TA		IB Debt/TL	
Post-Deal Window	[0,4]	[5,8]	[0,4]	[5,8]	[0,4]	[5,8]
(1) Stand-alone	−0.092	0.088	−0.025	0.140	−0.038	0.049
	(−1.23)	(0.55)	(−0.21)	(0.65)	(−0.29)	(0.24)
(2) Platform	0.001	0.079**	0.044	−0.124**	−0.003	0.133***
	(0.05)	(2.08)	(1.23)	(−2.37)	(−0.11)	(3.04)
(3) Add-on	−0.021	−0.016	0.114***	0.045	−0.037	−0.032
	(−0.72)	(−0.40)	(2.82)	(0.83)	(−0.97)	(−0.59)
H_0^A: (1) = (2)	0.229	0.957	0.572	0.236	0.797	0.687
H_0^B: (2) = (3)	0.553	0.070	0.171	0.016	0.485	0.014
H_0^C: (1) = (3)	0.361	0.522	0.257	0.666	0.998	0.547
Observations	9,902	9,982	9,902	9,982	9,902	9,982
Adj. R^2	0.453	0.423	0.528	0.491	0.453	0.429
Hospital Controls	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y	Y	Y

Table A5: Balance Sheet Levels After PE Acquisition

This table reports difference-in-differences (DID) estimates of the effect of PE acquisition on balance sheet levels. Each row shows the coefficient on a post-acquisition indicator interacted with the deal type, i.e., *Stand-alone* (a target acquired that is not part of a roll-up), *Platform* (a new platform acquisition), and *Add-on* (a target added to an existing platform). Columns report effects in the first four years after PE entry and in years five to eight. Outcomes are total liabilities, long-term liabilities, equity, and assets, all expressed in billions of dollars. The rows labeled "(1) = (2)" and "(2) = (3)" present Wald Chi-square tests comparing the effects between (1) Stand-alone×Post, (2) Platform×Post, and (3) Add-on×Post. The specification includes hospital fixed effects, event-time fixed effects, and match-ID fixed effects; hospital-level controls (log beds, Medicare share, Medicaid share, outpatient share, case mix index); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are two-way clustered by hospital and match-ID. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	Liabilities ($ bn)		LT Liabilities ($ bn)		Equity ($ bn)		Assets ($ bn)	
Post-Deal Window	[0,4]	[5,8]	[0,4]	[5,8]	[0,4]	[5,8]	[0,4]	[5,8]
(1) Stand-alone	−0.021	−0.001	−0.013	0.014	−0.044**	−0.107***	−0.039**	−0.056**
	(−1.61)	(−0.12)	(−1.30)	(1.13)	(−2.48)	(−3.09)	(−2.57)	(−2.72)
(2) Platform	−0.030***	−0.056***	−0.027***	−0.042***	0.016	0.066***	−0.028***	−0.023**
	(−5.44)	(−7.33)	(−5.79)	(−6.59)	(1.14)	(3.36)	(−4.32)	(−2.39)
(3) Add-on	−0.019***	−0.036***	−0.018***	−0.031***	−0.072***	−0.082***	−0.052***	−0.064***
	(−4.10)	(−4.18)	(−4.59)	(−3.88)	(−5.97)	(−4.86)	(−6.97)	(−6.46)
Observations	11,128	11,596	11,128	11,596	11,128	11,596	11,128	11,596
Adj. R^2	0.767	0.748	0.735	0.711	0.759	0.758	0.856	0.843
H_0^A: (1) = (2)	0.509	0.000	0.207	0.000	0.002	0.000	0.473	0.128
H_0^B: (2) = (3)	0.073	0.038	0.080	0.184	0.000	0.000	0.001	0.000
H_0^C: (1) = (3)	0.904	0.006	0.675	0.001	0.136	0.499	0.454	0.737
Hospital Controls	Y	Y	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y	Y	Y	Y	Y

Table A6: Patient Volumes and Capacity After PE Acquisition

This table reports DID estimates of the effect of PE acquisition on patient volumes and capacity. Each row shows the coefficient on a post-acquisition indicator interacted with the deal type, i.e., *Stand-alone* (a target acquired that is not part of a roll-up), *Platform* (a new platform acquisition), and *Add-on* (a target added to an existing platform). Columns report effects in the first four years after PE entry and in years five to eight. Outcomes are measured in natural logs (except occupancy rate), so coefficients are semi-elasticities and can be interpreted as approximate percent changes ($100 \times \beta$). The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing the effects between (1) Stand-alone×Post, (2) Platform×Post, and (3) Add-on×Post. These tests assess whether the effects differ significantly across acquisition types. The specification includes hospital fixed effects, event-time fixed effects, and match-ID fixed effects; hospital-level controls (log beds, Medicare share, Medicaid share, outpatient share, profitability); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are two-way clustered by hospital and match-ID. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	Log(Total Discharges)		Log(Medicare Discharges)		Log(Medicaid Discharges)		Log(Discharges/Bed)		Occupancy Rate	
Post-Deal Window	[0,4]	[5,8]	[0,4]	[5,8]	[0,4]	[5,8]	[0,4]	[5,8]	[0,4]	[5,8]
Stand-alone	−0.439	−0.074	−0.388	−0.088	−0.239	−0.841	−0.275	−0.101	−0.097**	−0.058**
	(−1.470)	(−0.580)	(−1.310)	(−0.580)	(−0.640)	(−1.190)	(−1.440)	(−0.850)	(−2.360)	(−2.840)
Platform	0.032	0.149***	0.045	0.182***	0.049	0.119	0.075**	0.123***	0.026**	0.062***
	(1.120)	(3.560)	(1.340)	(3.960)	(0.870)	(1.520)	(2.460)	(3.240)	(2.550)	(4.190)
Add-on	−0.200***	−0.111**	−0.178***	−0.092*	−0.240***	−0.038	−0.111***	−0.054	−0.038***	−0.023
	(−5.280)	(−2.140)	(−4.630)	(−1.800)	(−4.610)	(−0.470)	(−3.560)	(−1.280)	(−3.910)	(−1.280)
H_0^A: (1) = (2)	0.111	0.087	0.138	0.085	0.435	0.178	0.066	0.068	0.003	0.000
H_0^B: (2) = (3)	0.000	0.000	0.000	0.000	0.000	0.118	0.000	0.000	0.000	0.000
H_0^C: (1) = (3)	0.437	0.789	0.490	0.983	0.998	0.258	0.404	0.702	0.167	0.144
Observations	11,097	11,544	11,097	11,544	11,097	11,544	11,097	11,544	11,097	11,544
Adj. R^2	0.921	0.920	0.942	0.937	0.913	0.901	0.688	0.680	0.820	0.805
Hospital Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Table A7: Revenues and Charges After PE Acquisition

This table reports DID estimates of the effect of PE acquisition on hospital revenues and charges. *Panel A* reports results for revenue measures: Log(MDCR IP Rev) = log Medicare net inpatient revenue; Log(MDCR OP Rev) = log Medicare net outpatient revenue; Log(Net Pat Rev) = log total net patient revenues. *Panel B* reports results for charge measures: Log(MDCR IP Chg) = log Medicare inpatient charges; Log(MDCR OP Chg) = log Medicare outpatient charges; Log(Total Chg) = log total hospital charges. Columns report effects in the first four years after PE entry and in years five to eight. The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing the effects between (1) Stand-alone×Post, (2) Platform×Post, and (3) Add-on×Post. Specifications include hospital, event-time, and match-ID fixed effects; hospital-level controls (log beds, Medicare share, Medicaid share, outpatient share, profitability); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are two-way clustered by hospital and match-ID. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: Revenue Outcomes						
	Log(MDCR IP Rev)		Log(MDCR OP Rev)		Log(Net Pat Rev)	
Post-Deal Window	[0–4]	[5–8]	[0–4]	[5–8]	[0–4]	[5–8]
(1) Stand-alone	-0.228	0.059	-0.393	-0.166	-0.226	-0.210
	(-0.84)	(0.40)	(-1.08)	(-0.77)	(-1.28)	(-1.13)
(2) Platform	0.063**	0.207***	0.061	0.059	0.039	0.088**
	(2.23)	(5.08)	(1.59)	(1.03)	(1.46)	(2.18)
(3) Add-on	-0.152***	-0.105**	-0.195***	-0.121	-0.169***	-0.151***
	(-4.74)	(-1.99)	(-4.20)	(-1.62)	(-5.44)	(-2.96)
H_0^A (1) = (2)	0.278	0.332	0.203	0.302	0.130	0.116
H_0^B (2) = (3)	0.000	0.000	0.000	0.032	0.000	0.000
H_0^C (1) = (3)	0.786	0.295	0.592	0.840	0.756	0.759
Adj. R^2	0.956	0.951	0.911	0.907	0.951	0.948
Observations	11,357	11,831	11,357	11,831	11,357	11,831
Panel B: Charge Outcomes						
	Log(MDCR IP Chg)		Log(MDCR OP Chg)		Log(Total Chg)	
Post-Deal Window	[0–4]	[5–8]	[0–4]	[5–8]	[0–4]	[5–8]
(1) Stand-alone	-0.364	-0.011	-0.218	-0.122	-0.308**	-0.249
	(-1.42)	(-0.07)	(-0.88)	(-0.39)	(-2.14)	(-1.52)
(2) Platform	0.147***	0.335***	0.095***	0.162***	0.062**	0.229***
	(4.04)	(6.28)	(2.69)	(3.14)	(2.02)	(5.02)
(3) Add-on	-0.158***	-0.066	-0.143***	-0.045	-0.185***	-0.065
	(-3.75)	(-0.77)	(-3.48)	(-0.59)	(-5.09)	(-0.89)
H_0^A (1) = (2)	0.043	0.036	0.197	0.367	0.009	0.004
H_0^B (2) = (3)	0.000	0.000	0.000	0.009	0.000	0.000
H_0^C (1) = (3)	0.434	0.759	0.766	0.809	0.407	0.297
Adj. R^2	0.955	0.951	0.943	0.940	0.961	0.959
Observations	11,357	11,831	11,357	11,831	11,357	11,831
Hospital Controls	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y	Y	Y

Table A8: Costs and Adjusted Volume After PE Acquisition

This table reports DID estimates of the effect of PE acquisition on hospital costs and volumes. Each row shows the coefficient on a post-acquisition indicator interacted with the deal type, i.e., *Stand-alone* (a target acquired that is not part of a roll-up), *Platform* (a new platform acquisition), and *Add-on* (a target added to an existing platform). Columns report effects in the first four years after PE entry and in years five to eight. Outcomes are: log total cost per *adjusted* discharge, log total cost, and log adjusted discharges. The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing the effects between (1) Stand-alone×Post, (2) Platform×Post, and (3) Add-on×Post. The specification includes hospital fixed effects, event-time fixed effects, and match-ID fixed effects; hospital-level controls (log beds, Medicare share, Medicaid share, outpatient share, profitability, case mix index); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are two-way clustered by hospital and match-ID. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	Log(Cost / Adj Disch)		Log(Total Cost)		Log(Adj. Discharges)	
Post-Deal Window	[0,4]	[5,8]	[0,4]	[5,8]	[0,4]	[5,8]
(1) Stand-alone	0.039	−0.072	−0.276	−0.074	−0.315	−0.002
	(0.32)	(−1.10)	(−1.48)	(−0.48)	(−1.10)	(−0.01)
(2) Platform	0.018	−0.044*	0.052*	0.119***	0.033	0.163***
	(0.99)	(−1.82)	(1.79)	(3.13)	(1.15)	(3.85)
(3) Add-on	−0.025	−0.027	−0.234***	−0.159***	−0.209***	−0.132**
	(−0.75)	(−0.77)	(−7.99)	(−2.95)	(−5.44)	(−2.44)
H_0^A: (1) = (2)	0.866	0.663	0.076	0.219	0.220	0.192
H_0^B: (2) = (3)	0.206	0.622	0.000	0.000	0.000	0.000
H_0^C: (1) = (3)	0.620	0.522	0.828	0.604	0.720	0.326
Observations	11,456	11,940	11,456	11,940	11,456	11,940
Adj. R^2	0.848	0.858	0.943	0.943	0.911	0.912
Hospital Controls	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y	Y	Y

Table A9: Cost-to-Charge Ratios After PE Acquisition

This table reports DID estimates of the effect of PE acquisition on cost-to-charge ratios (CCR). Panel A shows effects on overall, ICU, laboratory, and emergency CCR, and Panel B on adult/pediatric, medical supplies, drugs, and operating room CCR. Columns report effects in the first four years after PE entry and in years five to eight. The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing the effects between (1) Stand-alone×Post, (2) Platform×Post, and (3) Add-on×Post. The specification includes hospital fixed effects, event-time fixed effects, and match-ID fixed effects; hospital-level controls (log beds, Medicare share, Medicaid share, outpatient share, profitability, case mix index); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are two-way clustered by hospital and match-ID. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A								
	Log(Overall CCR)		Log(ICU CCR)		Log(Lab CCR)		Log(Emergency CCR)	
Post-Deal Window	[0–4]	[5–8]	[0–4]	[5–8]	[0–4]	[5–8]	[0–4]	[5–8]
(1) Stand-alone	0.013	0.211***	0.041	0.347***	0.181**	0.052	0.352***	0.386***
	(0.070)	(4.670)	(0.160)	(8.440)	(2.220)	(1.070)	(3.160)	(4.680)
(2) Platform	-0.077***	-0.173***	-0.064**	-0.213***	-0.116***	-0.165***	-0.148***	-0.274***
	(-4.210)	(-5.750)	(-2.210)	(-4.990)	(-3.140)	(-3.010)	(-5.070)	(-5.860)
(3) Add-on	-0.045*	-0.111***	-0.008	-0.016	-0.022	-0.055	-0.073*	-0.172**
	(-1.800)	(-2.720)	(-0.210)	(-0.270)	(-0.670)	(-0.970)	(-1.900)	(-2.130)
H_0^A: (1) = (2)	0.652	0.000	0.681	0.000	0.000	0.001	0.000	0.000
H_0^B: (2) = (3)	0.245	0.184	0.166	0.005	0.030	0.109	0.088	0.246
H_0^C: (1) = (3)	0.771	0.000	0.850	0.000	0.010	0.079	0.000	0.000
Adj. R^2	0.903	0.919	0.850	0.848	0.904	0.908	0.871	0.885
Observations	6,246	6,768	6,246	6,768	6,246	6,768	6,246	6,768
Panel B								
	Log(Adult/Peds CCR)		Log(Medsupps CCR)		Log(Drugs CCR)		Log(OR CCR)	
Post-Deal Window	[0–4]	[5–8]	[0–4]	[5–8]	[0–4]	[5–8]	[0–4]	[5–8]
(1) Stand-alone	0.129***	0.051	0.528***	0.762***	0.160**	0.212	0.065	0.474**
	(2.660)	(1.340)	(2.750)	(3.620)	(2.250)	(0.750)	(0.240)	(2.310)
(2) Platform	-0.077***	-0.127***	0.045	-0.300***	-0.032	-0.148***	-0.051*	-0.066
	(-2.640)	(-3.420)	(0.980)	(-3.880)	(-1.200)	(-3.570)	(-1.670)	(-1.560)
(3) Add-on	-0.018	-0.002	0.014	-0.098	0.000	-0.051	-0.026	-0.164**
	(-0.520)	(-0.040)	(0.220)	(-1.000)	(0.010)	(-0.700)	(-0.600)	(-2.550)
H_0^A: (1) = (2)	0.227	0.033	0.046	0.000	0.276	0.001	0.441	0.012
H_0^B: (2) = (3)	0.013	0.066	0.088	0.004	0.079	0.121	0.031	0.000
H_0^C: (1) = (3)	0.555	0.085	0.021	0.002	0.098	0.047	0.367	0.001
Adj. R^2	0.870	0.871	0.615	0.684	0.855	0.859	0.837	0.860
Observations	6,246	6,768	6,246	6,768	6,246	6,768	6,246	6,768
Hospital Controls	Y	Y	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y	Y	Y	Y	Y

Table A10: Intensive Care Unit (ICU) Outcomes After PE Acquisition

This table reports DID estimates of the effect of PE acquisition on ICU outcomes. Panel A shows effects on ICU activity and billing (inpatient charges, gross inpatient revenue, inpatient days), and Panel B on ICU costs and efficiency (total costs, inpatient costs, cost-to-charge ratio). Columns report effects in the short run (years 0–4) and long run (years 5–8). The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing acquisition types. All specifications include hospital fixed effects, division×year fixed effects, and match-ID fixed effects; hospital controls (log beds, Medicare share, Medicaid share, outpatient share, profitability); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are based on two-way clustered standard errors (hospital and match-ID). Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: ICU Activity & Billing						
	Log(ICU Inpatient Charges)		Log(ICU Gross Rev)		Log(ICU Inpatient Days)	
Post-Deal Window	[0–4]	[5–8]	[0–4]	[5–8]	[0–4]	[5–8]
(1) Stand-alone	-0.312*	-0.314	-0.242*	-0.060	-0.592	-0.096
	(-1.73)	(-0.56)	(-1.77)	(-0.15)	(-1.36)	(-0.20)
(2) Platform	0.112**	0.322***	0.237***	0.543***	-0.005	0.157**
	(2.57)	(4.47)	(3.95)	(6.83)	(-0.12)	(2.36)
(3) Add-on	-0.140**	-0.175	-0.137**	-0.200*	-0.074	-0.210**
	(-2.31)	(-1.45)	(-2.27)	(-1.68)	(-1.28)	(-2.21)
H_0^A: (1) = (2)	0.017	0.260	0.001	0.137	0.171	0.607
H_0^B: (2) = (3)	0.000	0.000	0.000	0.000	0.243	0.000
H_0^C: (1) = (3)	0.348	0.809	0.460	0.736	0.242	0.819
Adj. R^2	0.932	0.923	0.926	0.925	0.877	0.873
Observations	6,246	6,768	6,246	6,768	6,246	6,768
Panel B: ICU Costs & Efficiency						
	Log(ICU Total Costs)		Log(ICU Inpatient Costs)		Log(ICU CCR)	
Post-Deal Window	[0–4]	[5–8]	[0–4]	[5–8]	[0–4]	[5–8]
(1) Stand-alone	-0.308	0.036	-0.310	0.023	0.041	0.347***
	(-0.90)	(0.06)	(-0.91)	(0.04)	(0.16)	(8.44)
(2) Platform	0.047	0.100**	0.047	0.099**	-0.064**	-0.213***
	(1.46)	(2.04)	(1.45)	(2.03)	(-2.21)	(-4.99)
(3) Add-on	-0.135***	-0.123**	-0.135***	-0.124**	-0.008	-0.016
	(-3.32)	(-2.07)	(-3.32)	(-2.08)	(-0.21)	(-0.27)
H_0^A: (1) = (2)	0.296	0.911	0.292	0.895	0.681	0.000
H_0^B: (2) = (3)	0.000	0.001	0.000	0.001	0.166	0.005
H_0^C: (1) = (3)	0.624	0.779	0.619	0.799	0.850	0.000
Adj. R^2	0.931	0.933	0.931	0.933	0.827	0.827
Observations	6,246	6,768	6,246	6,768	6,246	6,768
Hospital Controls	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y	Y	Y

Table A11: Laboratory Outcomes After PE Acquisition

This table reports DID estimates of the effect of PE acquisition on laboratory outcomes. Panel A shows effects on laboratory billing and total costs (inpatient charges, outpatient charges, total costs), and Panel B on laboratory cost breakdown and efficiency (inpatient costs, outpatient costs, cost-to-charge ratio). Columns report effects in the short run (years 0–4) and long run (years 5–8). The rows labeled "(1) = (2)", "(2) = (3)", and "(1) = (3)" present Wald Chi-square tests comparing acquisition types. All specifications include hospital fixed effects, event-time fixed effects, and match-ID fixed effects; hospital controls (log beds, Medicare share, Medicaid share, outpatient share, profitability, case mix index); and county controls (log population, log fair-market rent, Black share, Asian share). T-statistics (in parentheses) are based on two-way clustered standard errors (hospital and match-ID). Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: Laboratory Billing & Total Costs						
	Log(Lab Inpatient Charges)		Log(Lab Outpatient Charges)		Log(Lab Total Costs)	
Post-Deal Window	[0–4]	[5–8]	[0–4]	[5–8]	[0–4]	[5–8]
(1) Stand-alone	-0.375	0.053	-0.557	-0.153	-0.283	0.004
	(-1.41)	(0.32)	(-1.47)	(-0.71)	(-1.12)	(0.03)
(2) Platform	0.118**	0.341***	0.130***	0.289***	-0.005	0.032
	(2.61)	(4.95)	(3.23)	(3.93)	(-0.19)	(0.83)
(3) Add-on	-0.059	0.040	-0.151***	-0.162	-0.145***	-0.160**
	(-1.27)	(0.45)	(-2.74)	(-1.57)	(-3.95)	(-2.61)
H_0^A: (1) = (2)	0.058	0.103	0.064	0.047	0.267	0.861
H_0^B: (2) = (3)	0.003	0.004	0.000	0.000	0.000	0.003
H_0^C: (1) = (3)	0.244	0.944	0.294	0.968	0.604	0.321
Adj. R^2	0.943	0.946	0.915	0.919	0.940	0.935
Observations	6,246	6,768	6,246	6,768	6,246	6,768
Panel B: Laboratory Costs & Efficiency						
	Log(Lab Inpatient Costs)		Log(Lab Outpatient Costs)		Log(Lab CCR)	
Post-Deal Window	[0–4]	[5–8]	[0–4]	[5–8]	[0–4]	[5–8]
(1) Stand-alone	-0.197	0.091	-0.378	-0.115	0.181**	0.052
	(-1.00)	(0.66)	(-1.17)	(-0.62)	(2.22)	(1.07)
(2) Platform	0.002	0.084**	0.014	0.032	-0.116***	-0.165***
	(0.06)	(2.03)	(0.46)	(0.66)	(-3.14)	(-3.01)
(3) Add-on	-0.077**	-0.030	-0.169***	-0.232***	-0.022	-0.055
	(-1.99)	(-0.46)	(-3.36)	(-2.78)	(-0.67)	(-0.97)
H_0^A: (1) = (2)	0.310	0.960	0.221	0.430	0.000	0.001
H_0^B: (2) = (3)	0.074	0.098	0.001	0.003	0.030	0.109
H_0^C: (1) = (3)	0.567	0.412	0.534	0.555	0.010	0.079
Adj. R^2	0.940	0.936	0.916	0.908	0.890	0.896
Observations	6,246	6,768	6,246	6,768	6,246	6,768
Hospital Controls	Y	Y	Y	Y	Y	Y
County Controls	Y	Y	Y	Y	Y	Y
Hospital FE	Y	Y	Y	Y	Y	Y
Event-time FE	Y	Y	Y	Y	Y	Y
Match-ID FE	Y	Y	Y	Y	Y	Y

Table A12: Post-Acquisition Operating Performance: Platform Hospitals by Add-on Scale

This table reports difference-in-differences estimates of post-acquisition changes in hospital Operating Margin, estimated across add-on intensity buckets among platform hospitals. The estimation sample includes only platform and standalone hospitals (and their matched control hospitals). "None (0)" corresponds to stand-alone hospitals that were acquired as single-entity (non-roll-up) targets. Columns (1)–(4) progressively add fixed effects and controls: Column (1) includes hospital and match fixed effects only; Column (2) adds event-time fixed effects; Column (3) further adds hospital-level controls; and Column (4) adds county-level controls. T-statistics (in parentheses) are two-way clustered by hospital and match-ID. Rows labeled H_0^A–H_0^C report Wald tests comparing the "None (0)" bucket with higher add-on intensity categories. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	Dependent variable: Operating Margin			
	(1)	(2)	(3)	(4)
None (0)	−0.003	0.004	−0.030	−0.033
	(−0.07)	(0.09)	(−0.68)	(−0.77)
Single (1)	0.032**	0.038**	0.034**	0.037***
	(2.41)	(2.60)	(2.43)	(2.68)
Moderate (2–9)	0.052*	0.060**	0.053**	0.053**
	(1.96)	(2.20)	(2.09)	(2.05)
Heavy (10+)	0.109*	0.119**	0.116**	0.113*
	(1.95)	(2.16)	(2.02)	(1.92)
H_0^A: None = Single	0.478	0.508	0.154	0.114
H_0^B: None = Moderate	0.315	0.317	0.096	0.082
H_0^C: None = Heavy	0.129	0.119	0.046	0.048
Adj. R^2	0.398	0.399	0.407	0.408
Observations	11,791	11,791	11,791	11,791
Hospital Controls	N	N	Y	Y
County Controls	N	N	N	Y
Hospital FE	Y	Y	Y	Y
Event-time FE	N	Y	Y	Y
Match-ID FE	Y	Y	Y	Y

Table A13: Fund Returns by Add-on Strategy Bucket: Descriptive Averages

This appendix table reports average performance and fund characteristics across groups of buyout funds defined by their reliance on add-on acquisitions. Funds are sorted into mutually exclusive "add-on buckets" based on the total number of add-on deals they complete over the fund's life. *None (0)* corresponds to funds with no add-ons, *Single (1)* includes funds with exactly one add-on, *Moderate (2–9)* includes funds with between two and nine add-ons, and *Heavy (10+)* includes funds with ten or more add-ons. For each bucket, the table reports the average internal rate of return (IRR), total value to paid-in capital (TVPI), number of add-ons, average fund size (in millions of USD), and the number of funds falling into that category. These descriptive statistics highlight how fund outcomes vary systematically with the intensity of add-on activity.

Add-on Bucket	IRR	TVPI	Avg. Add-ons	Avg. Fund Size ($M)	Fund Count
None (0)	0.1353	1.6689	0.00	1,030.94	717
Single (1)	0.1321	1.7224	1.00	1,003.04	727
Moderate (2–9)	0.1391	1.7182	4.39	1,375.66	1,328
Heavy (10+)	0.1662	1.8639	29.86	1,861.12	885

Table A14: Fund Returns and Add-on Strategy Buckets in Buyout Deals

This appendix table reports OLS regressions of fund IRR on add-on bucket indicators defined as in Table A13. Column (1) includes no controls; Column (2) adds log fund size; Column (3) adds both log fund size and vintage fixed effects. Coefficients for bucket dummies are relative to *None (0)*. Parentheses show t-statistics based on robust (HC3) standard errors clustered at the fund level. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

	Dependent variable: Fund IRR		
	(1)	(2)	(3)
Single (1)	-0.0032	-0.0002	0.0028
	(-0.31)	(-0.02)	(0.28)
Moderate (2–9)	0.0038	0.0101	0.0149*
	(0.45)	(1.23)	(1.81)
Heavy (10+)	0.0309***	0.0438***	0.0434***
	(3.64)	(5.33)	(5.35)
ln(Fund size)		-0.0145***	-0.0156***
		(-7.08)	(-7.28)
Vintage FE	No	No	Yes
Observations	3,657	3,625	3,625
Adj. R^2	0.005	0.021	0.067

Table A15: Fund Returns and Add-on Activity in Buyout Deals

This table reports regression estimates of fund-level internal rate of return (IRR) on logged measures of add-on activity across the full buyout universe. Panel A uses the log of one plus the number of add-on deals completed by the fund. Panel B uses the log of one plus the average number of add-on acquisitions per year (add-on velocity). Specifications (1)–(3) are: (1) no controls, (2) + log fund size, (3) + log fund size and vintage year fixed effects. Reported in parentheses are t-statistics based on robust standard errors clustered at the fund level. Significance levels: * p<0.10, ** p<0.05, *** p<0.01.

Panel A: Add-on Count

	Dependent variable: Fund IRR		
	(1)	(2)	(3)
ln(1 + Add-on Count)	0.0107***	0.0149***	0.0142***
	(4.94)	(7.06)	(6.87)
ln(Fund Size)		−0.0150***	−0.0160***
		(-7.28)	(-7.51)
Vintage FE	No	No	Yes
Observations	3,625	3,625	3,625
R^2	0.006	0.022	0.068

Panel B: Add-on Velocity

	Dependent variable: Fund IRR		
	(1)	(2)	(3)
ln(1 + Add-on Velocity)	0.0125**	0.0132**	0.0089*
	(2.30)	(2.46)	(1.69)
ln(Fund Size)		−0.0091***	−0.0113***
		(-4.38)	(-5.39)
Vintage FE	No	No	Yes
Observations	2,870	2,870	2,870
R^2	0.001	0.008	0.068

Table A16: Fund Returns and GP Concurrency in Buyout Deals

This table reports regression estimates of fund-level internal rate of return (IRR) on logged measures of GP concurrency across the full buyout universe. Panel A uses the log of one plus the maximum number of acquisitions a GP closes in any calendar quarter (*Max Count*). Panel B uses the log of one plus the maximum dollar value of acquisitions a GP closes in any quarter (*Peak Value*). Panel C uses the log of one plus the maximum four-quarter rolling average of deal counts (*Peak Rolling Pace*), which captures a GP's ability to sustain a high acquisition tempo over time. Specifications with controls include log fund size and vintage year fixed effects. Reported in parentheses are t-statistics based on robust standard errors clustered at the fund level. Significance levels: * p<0.10, ** p<0.05, *** p<0.01.

Panel A: Max Count

	Dependent variable: Fund IRR		
	(1)	(2)	(3)
ln(1 + Max Count)	0.0297***	0.0478***	0.0460***
	(5.50)	(8.17)	(8.07)
ln(Fund size)		−0.0187***	−0.0203***
		(-8.30)	(-8.73)
Vintage FE	No	No	Yes
Observations	3,621	3,621	3,621
R^2	0.009	0.032	0.078

Panel B: Peak Rolling Pace

	Dependent variable: Fund IRR		
	(1)	(2)	(3)
ln(1 + Peak Rolling Pace)	0.0391***	0.0615***	0.0596***
	(5.70)	(8.23)	(8.15)
ln(Fund size)		−0.0186***	−0.0202***
		(-8.23)	(-8.67)
Vintage FE	No	No	Yes
Observations	3,621	3,621	3,621
R^2	0.010	0.033	0.079

Table A9: Fund Returns and GP Concurrency in Buyout Deals (continued)

Panel C: Peak $ Value			
	Dependent variable: Fund IRR		
	(1)	(2)	(3)
ln(1 + Peak $ Value)	0.0009	0.0073***	0.0069***
	(0.66)	(4.43)	(4.24)
ln(Fund size)		−0.0178***	−0.0194***
		(-6.76)	(-6.97)
Vintage FE	No	No	Yes
Observations	3,373	3,373	3,373
R^2	0.000	0.017	0.063

Figure A1. Geographic Distribution of Hospitals by Acquisition Role

This map shows the locations of hospitals in the private equity acquisition sample. Hospitals are classified as stand-alone acquisitions, initial platform acquisitions, or subsequent add-on acquisitions within multi-hospital roll-up strategies. Stand-alone hospitals (green triangles) represent one-off transactions not linked to a larger system. Platform hospitals (red stars) mark the initial entry point of a private equity firm into a market, and add-on hospitals (blue circles) are subsequent acquisitions consolidated under the same platform.

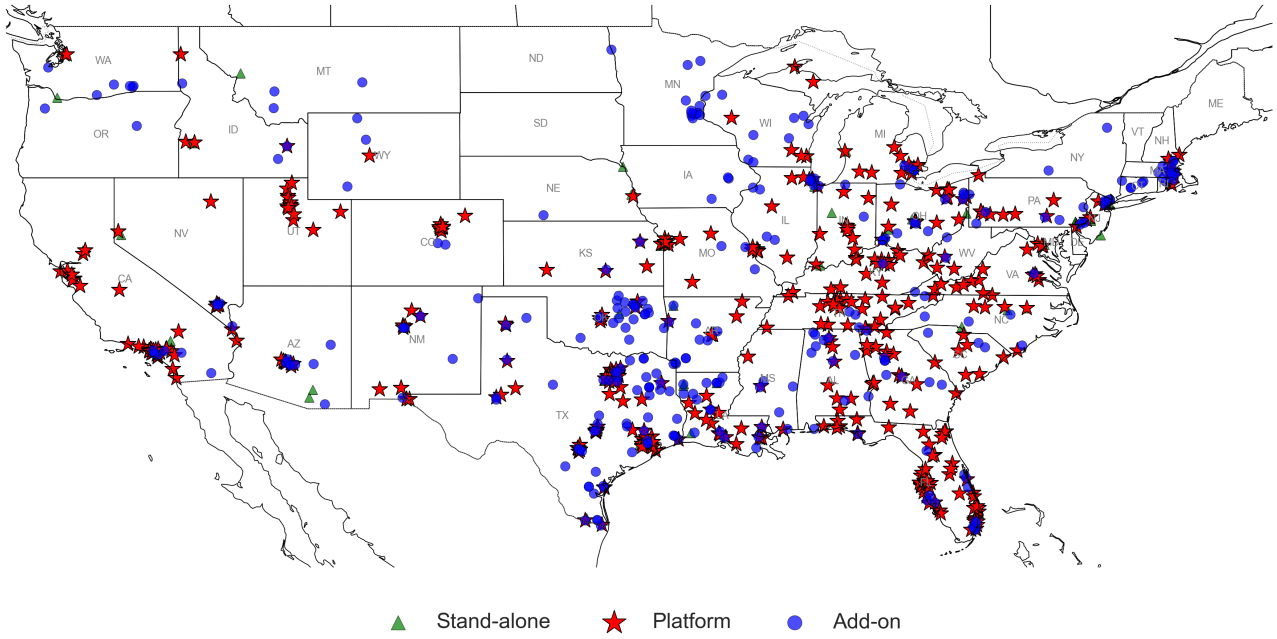
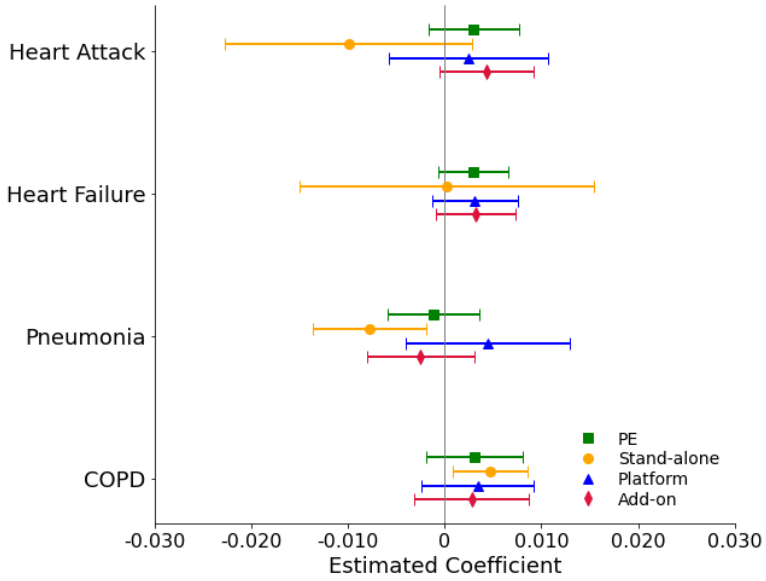
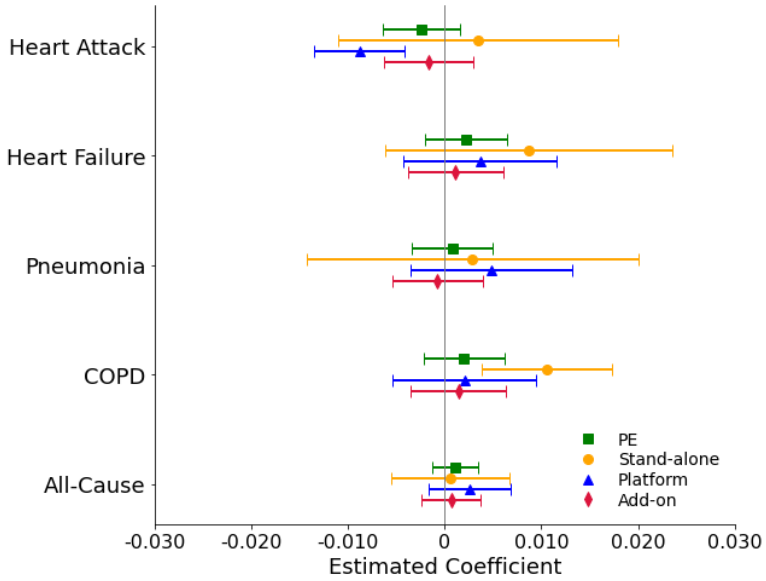


Figure A2. Patient Outcomes After Private Equity Acquisition: Mortality and Readmission

This figure plots the estimated effects of private equity acquisitions on 30-day patient outcomes. Panel A shows mortality rates for heart attack (AMI), heart failure (HF), pneumonia (PN), and chronic obstructive pulmonary disease (COPD). Panel B shows readmission rates for the same conditions as well as all-cause readmissions. All regressions include hospital and county controls, hospital fixed effects, match group fixed effects, and event-time fixed effects. Horizontal bars denote 95% confidence intervals, with standard errors clustered at the hospital level.



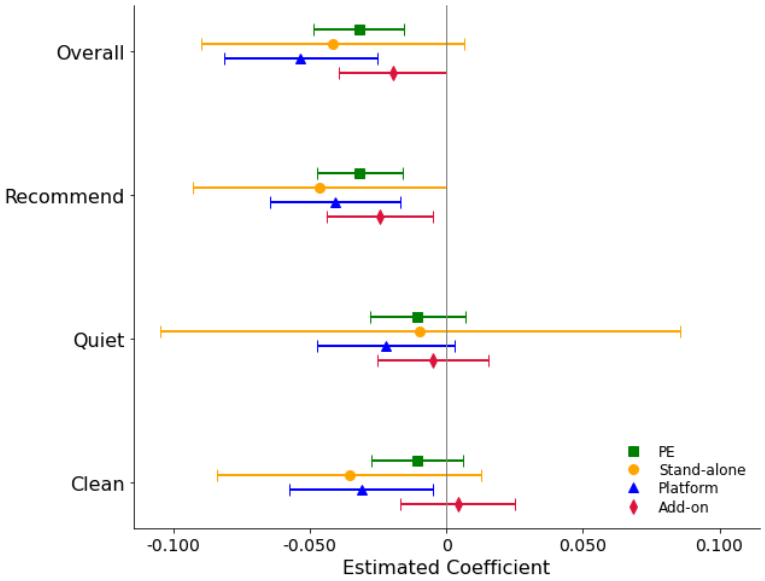
(a) Mortality rates



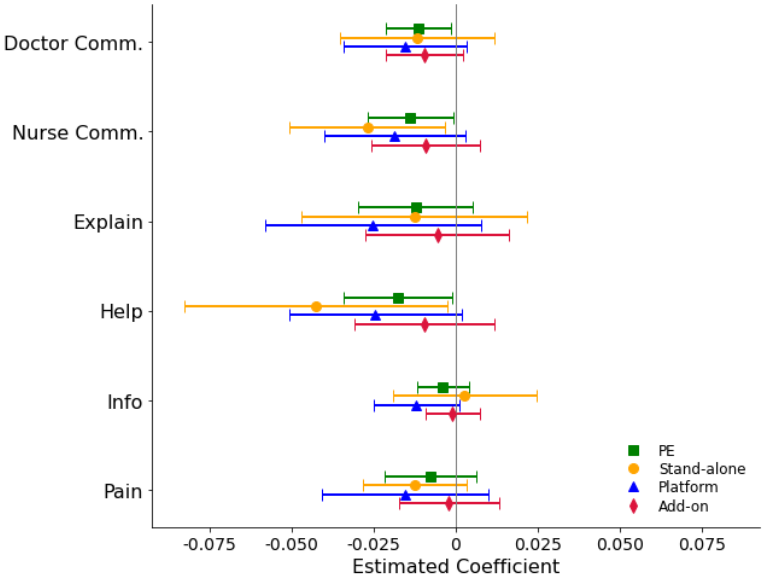
(b) Readmission rates

Figure A3. Patient Experience After Private Equity Acquisition: Satisfaction Survey Measures

This figure plots the estimated effects of private equity acquisitions on patient satisfaction outcomes. Panel A reports overall satisfaction and environment-related measures (overall hospital rating, recommendation, cleanliness, and quietness). Panel B reports care and interaction measures (communication with doctors, communication with nurses, explanation of care, help, information, and pain management). All regressions include hospital and county controls, hospital fixed effects, match group fixed effects, and event-time fixed effects. Horizontal bars denote 95% confidence intervals, with standard errors clustered at the hospital level.



(a) Overall and environment-related satisfaction

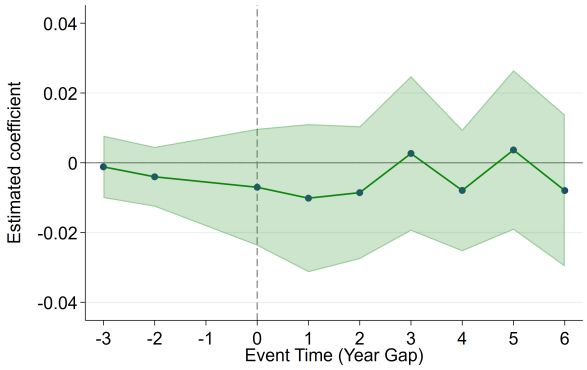


(b) Care and interaction-related satisfaction

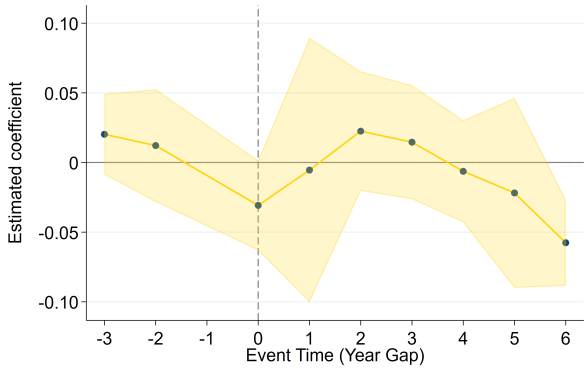
Figure A4. Event-Study Estimates: PE and Standalone Hospitals

This appendix figure plots event-study coefficients with two-way clustered standard errors (provider and match group) for five outcomes: return on assets (ROA), debt financing spread (IB - 3m), Medicare case-mix index (CMI), core employment, and administrative employment. All specifications include hospital controls (log beds, Medicare share, Medicaid share, outpatient share), county controls (log population, log FMR, Black share, Asian share), and fixed effects for provider, year-gap, and match group. The omitted event time is $F1$ (one year before).

Outcome: Debt Financing Spread (IB - 3m)

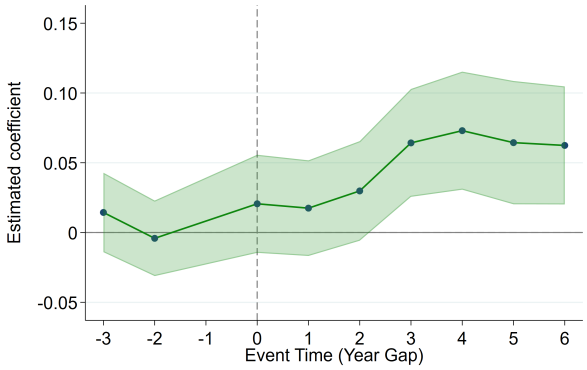


(a) All PE

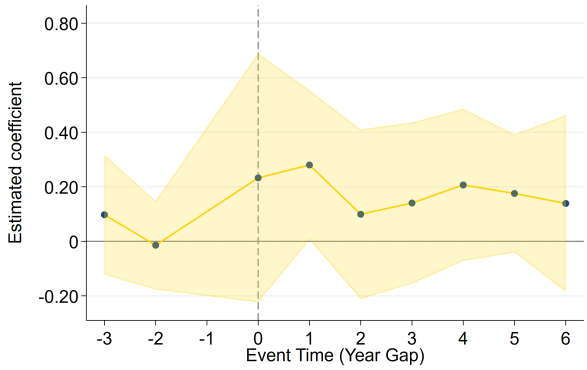


(b) Standalone

Outcome: Return on Assets (ROA)



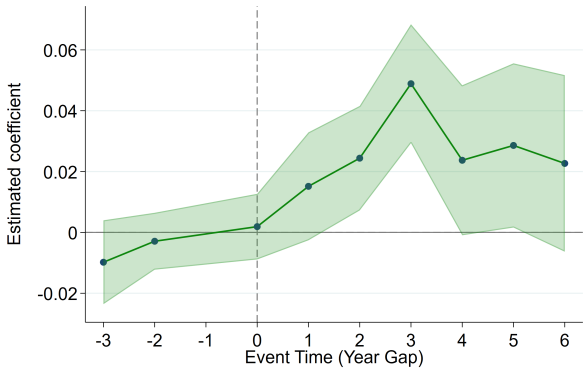
(c) All PE



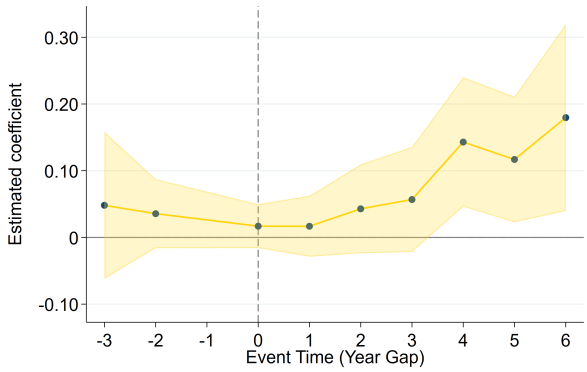
(d) Standalone

Figure A4. Event-Study Estimates: PE and Standalone (continued)

Outcome: Case-Mix Index (CMI)

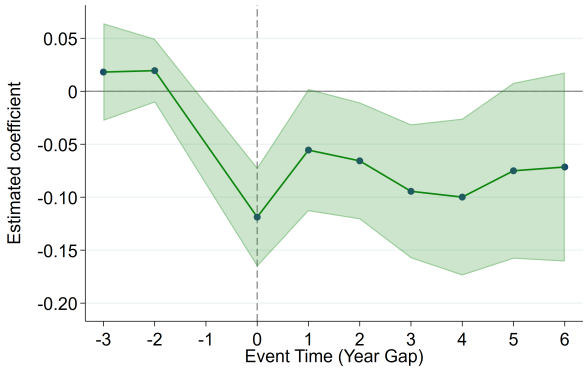


(e) All PE

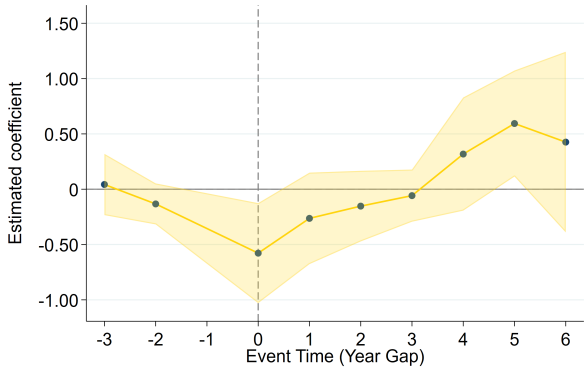


(f) Standalone

Outcome: Core Clinical Employment

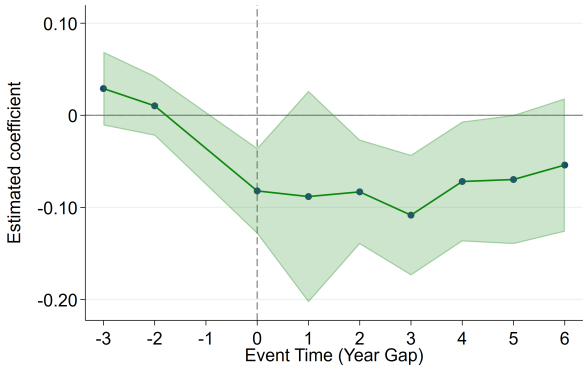


(g) All PE

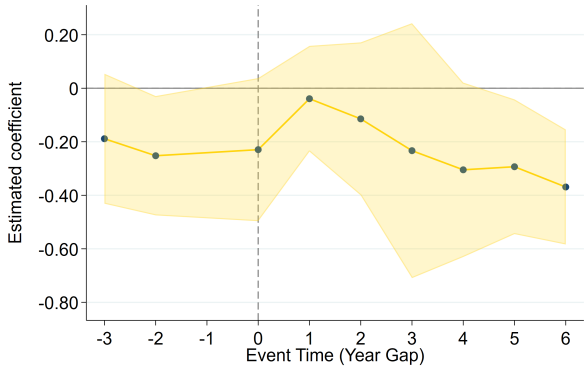


(h) Standalone

Outcome: Administrative Employment



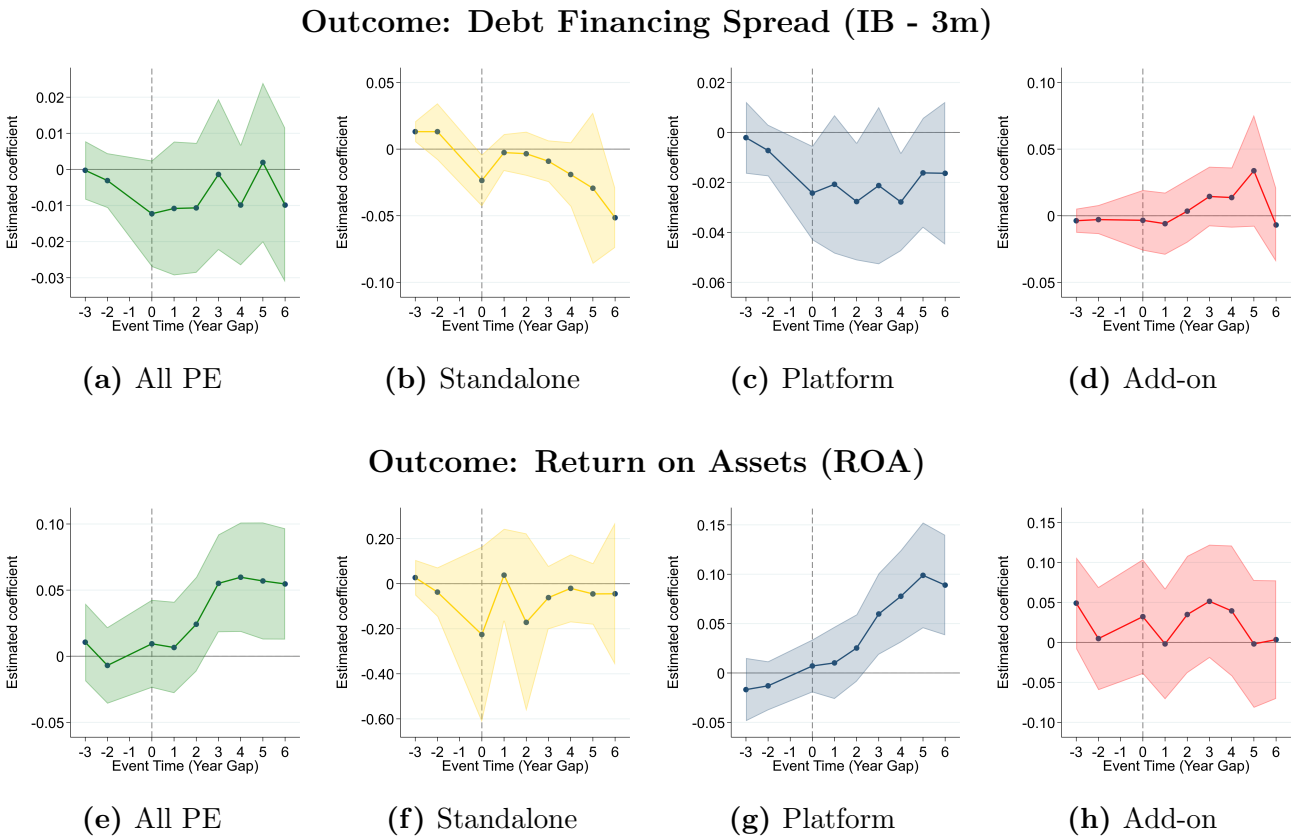
(i) All PE



(j) Standalone

Figure A5. Balanced-Panel Event-Study Estimates

This appendix figure plots balanced-panel event-study coefficients with two-way clustered standard errors (provider and match group). All specifications include hospital controls (log beds, Medicare share, Medicaid share, outpatient share), county controls (log population, log FMR, Black share, Asian share), and fixed effects for provider, year-gap, and match group. The omitted event time is $F1$ (one year before). The balanced panel requires that treated hospitals have complete observations for all years in the window $[-3, +6]$.

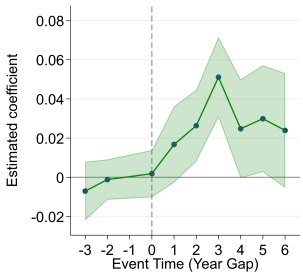


(a) All PE **(b)** Standalone **(c)** Platform **(d)** Add-on

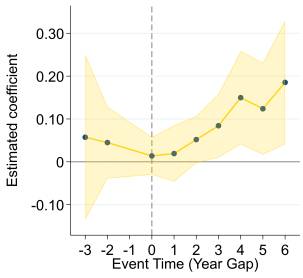
(e) All PE **(f)** Standalone **(g)** Platform **(h)** Add-on

Figure A5. Balanced-Panel Event-Study Estimates (continued)

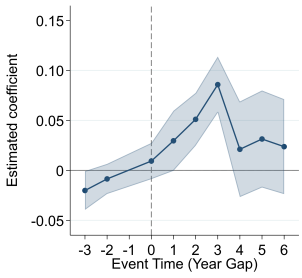
Outcome: Case-Mix Index (CMI)



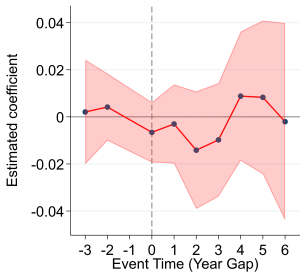
(i) All PE



(j) Standalone

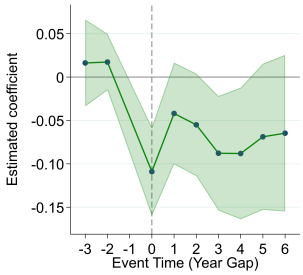


(k) Platform

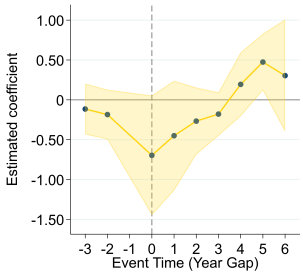


(l) Add-on

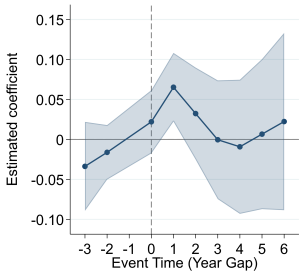
Outcome: Core Clinical Employment



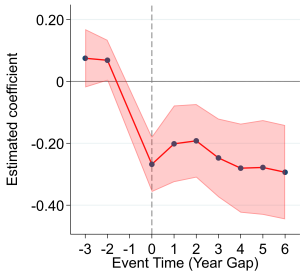
(m) All PE



(n) Standalone

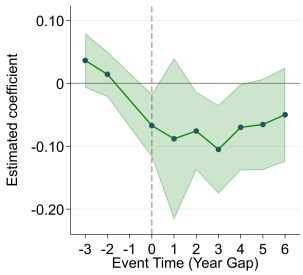


(o) Platform

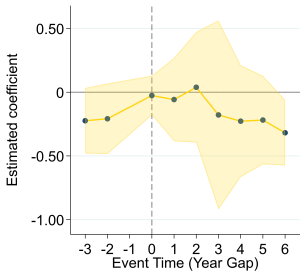


(p) Add-on

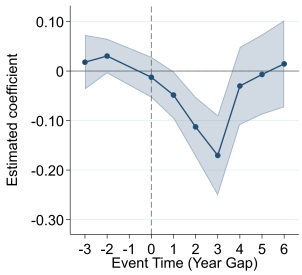
Outcome: Administrative Employment



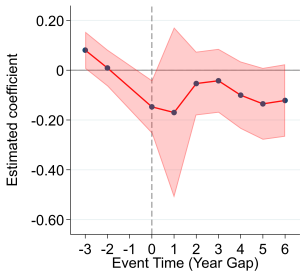
(q) All PE



(r) Standalone



(s) Platform

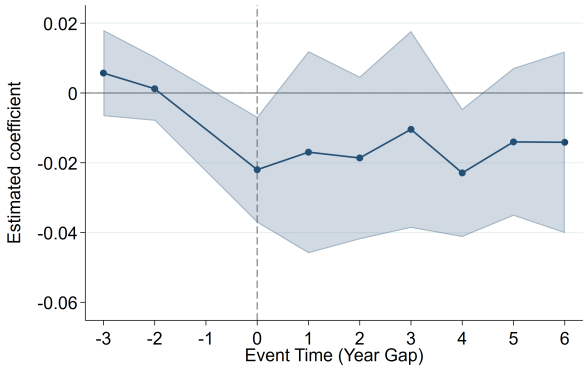


(t) Add-on

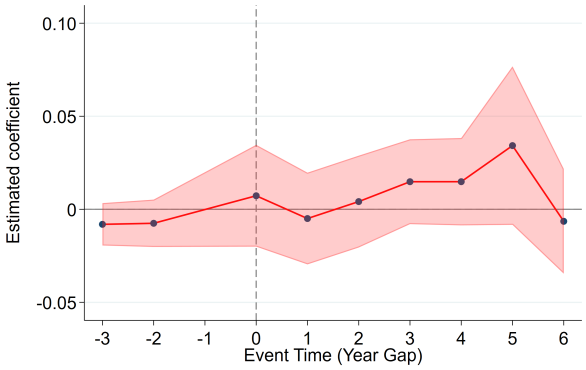
Figure A6. Event-Study Estimates: No Standalone Sample

This appendix figure reports event-study coefficients after reclassifying all stand-alone acquisitions as platforms and restricting the sample to platform and add-on hospitals. Two-way clustered standard errors (provider and match group) are used. All specifications include hospital controls (log beds, Medicare share, Medicaid share, outpatient share), county controls (log population, log FMR, Black share, Asian share), and fixed effects for provider, year-gap, and match group. The omitted event time is $F1$ (one year before).

Outcome: Debt Financing Spread (IB - 3m)

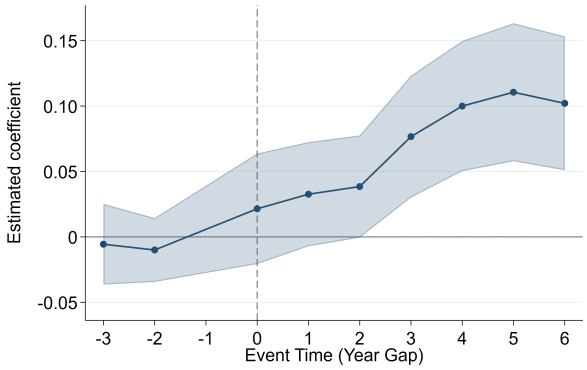


(a) Platform

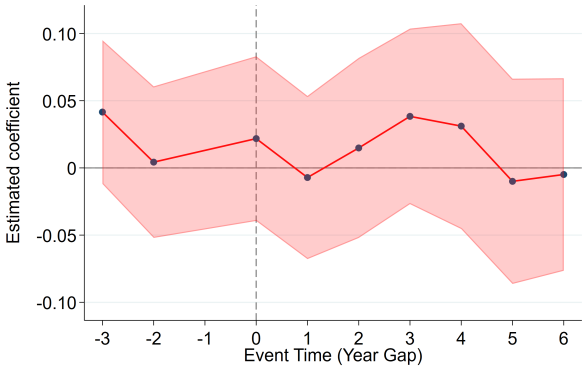


(b) Add-on

Outcome: Return on Assets (ROA)



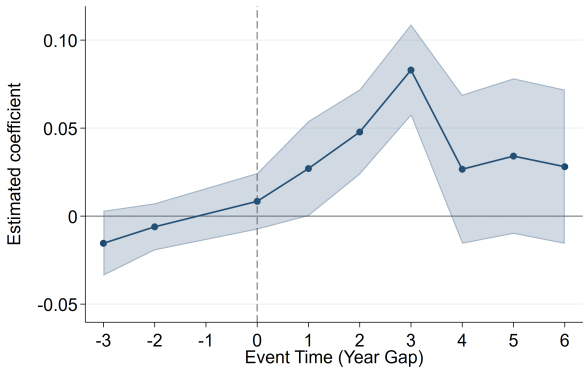
(c) Platform



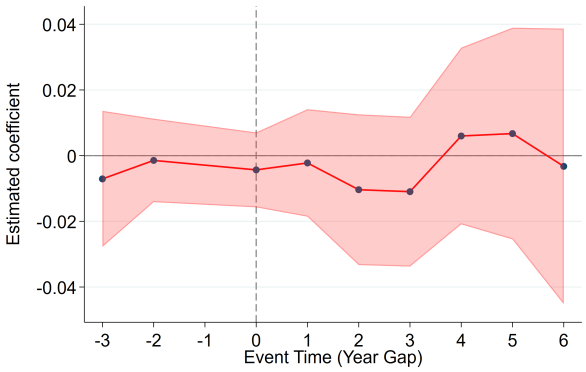
(d) Add-on

Figure A6. Event-Study Estimates: No Standalone Sample (continued)

Outcome: Case-Mix Index (CMI)

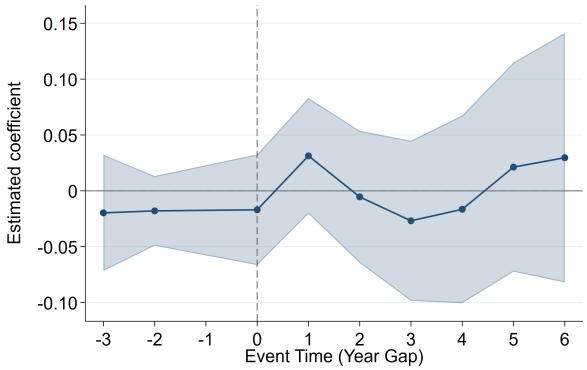


(e) Platform

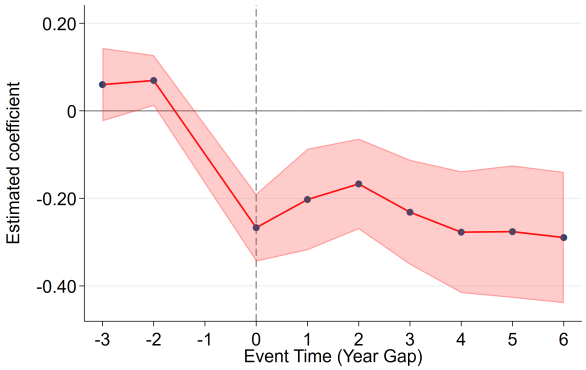


(f) Add-on

Outcome: Core Clinical Employment

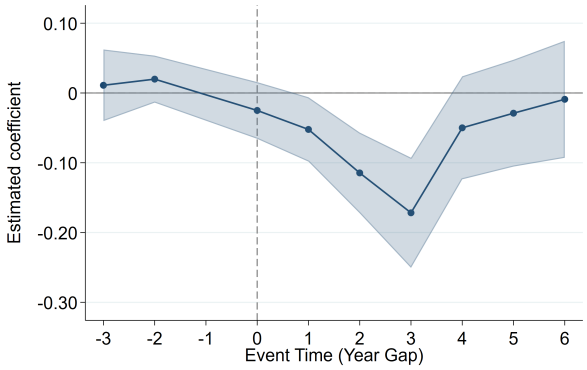


(g) Platform

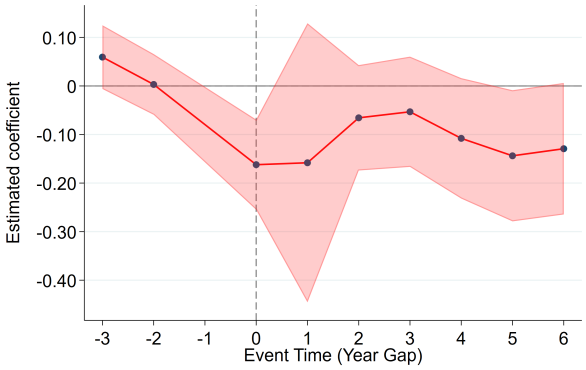


(h) Add-on

Outcome: Administrative Employment



(i) Platform



(j) Add-on

Appendix B: Legal and Accounting Background

This appendix provides detailed background on the legal, accounting, and regulatory frameworks that shape private equity roll-ups in the hospital industry. It sets out the institutional rules that determine how acquisition debt is recorded and whether it appears in hospital-level liabilities, and it explains how reimbursement formulas define the scope for margin improvement. Together, these frameworks clarify why PE buyouts generate financing relief at the platform stage and profitability gains through within-rule adjustments, while remaining subject to federal cost-reporting standards and state oversight.

B.1 Pushdown Accounting and Hospital-Level Liabilities

Under U.S. Generally Accepted Accounting Principles (GAAP), the treatment of acquisition debt depends on whether the acquired entity elects pushdown accounting. Accounting Standards Codification (ASC) 805-50 (formerly SFAS 141R) specifies that pushdown accounting is optional. When a new owner obtains control of a subsidiary, it may, but is not required to, restate the subsidiary's separate financial statements to reflect the parent's purchase-price basis and related acquisition debt.

The Securities and Exchange Commission reaffirmed this discretion in Staff Accounting Bulletin Topic 5.J, which states that a subsidiary "should apply pushdown accounting only when the new parent elects to do so and the resulting financial statements are useful to the subsidiary's users."

Most hospital systems elect not to apply pushdown accounting because doing so would insert system-level buyout debt into the books of each licensed hospital, disrupting continuity in Medicare cost-report comparability and potentially violating state solvency requirements.

Hospitals are required under 42 CFR § 413 to file annual Medicare cost reports that measure reimbursable costs on a consistent historical basis. Electing pushdown accounting would reset asset values and liabilities to the acquisition price, undermining year-to-year comparability that the Centers for Medicare & Medicaid Services (CMS) uses to determine allowable costs.

State licensing laws reinforce this separation. For example:

- **California Health & Safety Code § 1272.3** requires hospitals to maintain positive net-asset balances for license renewal.
- **Texas Administrative Code § 133.41** mandates minimum liquidity ratios for acute-care facilities.

Pushing acquisition debt down to individual hospitals could render many facilities technically insolvent under these statutes. As a result, system-level holding companies retain the

leveraged debt, while the operating hospitals record only intercompany equity injections from the parent. This structure explains why hospital-level liabilities in CMS cost reports often decline after acquisition even though consolidated system-level leverage rises.

B.2 Medicare and Medicaid Reimbursement Rules

The term "within-rule" in this paper refers to the concrete reimbursement mechanisms defined by CMS and parallel state programs. These rules determine how hospitals are paid for inpatient and outpatient services, how overhead and capital costs are reimbursed, and how cost reports must be filed. PE-owned hospitals can raise revenue or margins by working within these formulas without violating them.

Diagnosis-Related Groups (DRGs) for inpatient care. CMS pays most inpatient claims under the Inpatient Prospective Payment System (IPPS), which classifies each discharge into a DRG with an associated weight reflecting average resource use. Payment equals the base rate multiplied by the DRG weight and adjusted for area and case factors. Hospitals can lawfully increase revenue by documenting additional comorbidities, shifting service mix toward surgical or intensive-care lines, or emphasizing specialties with favorable DRG margins. Such adjustments raise the Case-Mix Index (CMI) and average reimbursement per discharge, which is consistent with the patterns in Table A1.

Ambulatory Payment Classifications (APCs) for outpatient services. Outpatient procedures are reimbursed under the Outpatient Prospective Payment System (OPPS), which groups services into APCs with fixed national payment rates. By reallocating visits from inpatient to outpatient settings or reclassifying procedures into higher-paying APC codes, hospitals can increase revenue per encounter while remaining within CMS rules. PE-backed systems often emphasize outpatient service expansion because it generates faster turnover and higher margins under OPPS.

Medicare and Medicaid cost-reporting standards (42 CFR § 413). These regulations define which expenses are allowable for reimbursement and require uniform reporting of costs, depreciation, and capital structure. Hospitals that change accounting bases must obtain CMS approval. The rigidity of these standards gives PE owners an incentive to optimize revenue through coding and service-mix adjustments rather than altering official cost structures, reinforcing the within-rule nature of their strategies.

B.3 State-Level Corporate Practice of Medicine Doctrines

State corporate practice of medicine (CPOM) laws determine whether non-physician entities may own, employ, or share in the profits of medical practices. These statutes vary across states and shape hospitals' ability to internalize physician revenue streams.

Concept and legal variation. Strict CPOM states, including California, New York, and Colorado, prohibit corporations or investment funds from directly employing physicians. Hospitals in these states must rely on friendly professional corporations, where a nominally independent professional entity bills payers and contracts its management to a non-physician company. In lenient states, including Florida, Texas, and Arizona, non-physician ownership is permitted or loosely enforced, which allows hospitals and PE firms to consolidate billing operations and capture outpatient revenue streams more fully.

Measurement: the CPOM Regulation Index. Following Liu (2022), this study employs the CPOM Regulation Index, which quantifies cross-state variation in the enforcement of CPOM restrictions. Higher index values indicate more lenient enforcement and greater flexibility for non-physician ownership and management, while lower values indicate stricter enforcement. In the present study, this index proxies for the ease of implementing within-rule revenue strategies, such as expanding physician employment, facility-fee billing, and outpatient reclassification, under otherwise identical Medicare and Medicaid reimbursement rules.

B.4 Integrating Financing and Regulatory Mechanisms

These legal and accounting features clarify why PE buyouts of hospitals produce the empirical patterns observed in the main text. System-level leverage arises from the optional nature of pushdown accounting and state solvency constraints. Profitability improvements arise from exploiting CMS reimbursement rules and CPOM heterogeneity. Both mechanisms operate within the existing legal framework and illustrate how PE owners create value by navigating, rather than violating, the regulatory architecture of the U.S. healthcare system.

Appendix C: Data Construction

This section details the construction of the dataset used in this paper. The raw data was compiled from multiple sources, cleaned, and merged to form a longitudinal panel dataset.

1. Data Sources

The following data sources were used to construct the final dataset:

1. **CMS Cost Reports:** These reports, obtained from the Centers for Medicare and Medicaid Services (CMS), provide detailed financial information on U.S. hospitals. The dataset includes variables on total patient revenue, operating expenses, adjusted costs, and patient volume. Data were extracted for the years 1996 to 2019. Both the 1996 and 2010 versions of the CMS cost report forms were used, which required mapping variables across forms.

2. **Quality Net Data:** This dataset contains hospital quality measures such as mortality and readmission rates, as well as patient satisfaction metrics. The data was sourced from CMS's QualityNet system, covering years from 2005 to 2024. For earlier years, archived data was retrieved using the Wayback Machine to ensure continuity.

3. **Preqin and PitchBook:** These databases were used to gather private equity (PE) acquisition information. Preqin provided details on PE fund activity, while PitchBook supplied comprehensive transaction-level data, including hospital acquisition details, investor information, and deal values.

4. **AHA Data:** The American Hospital Association (AHA) data was utilized to track hospital ownership and system affiliations from 1994 to 2019. This dataset was particularly useful in identifying hospitals that transitioned from one owner to another, providing key information for linking hospitals to their parent systems and ownership transitions.

5. **SDC-Platinum, FactSet, and Capital IQ:** Both public and private acquisition data were extracted from SDC-Platinum, FactSet, and Capital IQ. These sources were used to capture acquisition details for hospitals that were acquired by both private equity firms and other types of investors.

2. Data Cleaning and Transformation

To ensure that the data was suitable for panel analysis, extensive cleaning and transformation steps were applied:

1. **CMS Cost Report Data:** The CMS Cost Report data required significant restructuring. The raw data is organized into various worksheets, each containing a specific set of variables. The worksheets were manually mapped to the relevant variables such as revenue, expenses, and operational metrics using CMS documentation. A mapping crosswalk was developed to link the variables from the 1996 and 2010 versions of the cost report forms.

2. **AHA Data Integration:** AHA data was merged with the CMS Cost Report data by hospital identifiers. Because some hospitals changed systems or ownership structures over time, additional steps were taken to ensure that hospital system transitions were properly captured. This involved tracking hospitals that were acquired by private equity firms as part of broader system transactions.

3. **Preqin and PitchBook Data Cleaning:** The PE acquisition data from Preqin and PitchBook required normalization and deduplication. For example, multiple entries for the same hospital deal were often present in different formats across the datasets. Fuzzy matching techniques were applied to identify duplicate deals and consolidate them under a single identifier. This process was particularly important for identifying whether a hospital was acquired as part of a PE firm's first deal or a subsequent acquisition.

4. **FactSet, Capital IQ, and SDC-Platinum Data Integration:** Public and private market acquisition data from FactSet, Capital IQ and SDC-Platinum were matched with Preqin and PitchBook data using identifiers such as hospital names and deal dates. Fuzzy matching was used to link records across databases, and any discrepancies were manually verified against original acquisition reports.

3. Data Integration and Linking

A key aspect of constructing the dataset involved linking hospitals across different datasets and sources:

1. **Hospital-Level Matching:** Hospitals were matched across the CMS Cost Reports, QualityNet, and AHA datasets using unique hospital identifiers (e.g., Medicare Provider Number). In cases where hospitals changed ownership or systems, the dataset was adjusted to reflect ownership changes over time.

2. **Fuzzy Matching:** Fuzzy matching algorithms (token set ratio) were applied to link hospitals and investors across the Preqin, PitchBook, FactSet, and SDC-Platinum datasets.

Matching thresholds were carefully calibrated to minimize false positives and negatives. Any ambiguous matches were manually reviewed to ensure data integrity.

3. **Investor Matching:** Private equity firms and other investors were matched to hospitals using deal-level data from PitchBook and Preqin. The dataset includes information on the date of acquisition, deal value, and whether the acquisition was part of a first or subsequent deal for the PE firm.

4. Data Validation and Final Dataset Construction

The final dataset underwent several rounds of validation and testing to ensure reliability:

1. **Cross-Validation of Acquisition Dates:** Acquisition dates from Preqin, PitchBook, SDC-Platinum, and FactSet were cross-validated with publicly available sources, including news articles and reports. Any discrepancies were manually resolved.

2. **LLM-Verified Matches:** Matches between hospitals and investors were validated using LLM models. The use of LLM models, including GPT-4o, ensured high accuracy in the matching process. Manual checks were performed on cases where the LLM models did not agree.

3. **Final Dataset Structure:** The dataset is structured as a balanced panel dataset, with hospital-level observations spanning from 1996 to 2019. Each hospital is identified by its Medicare Provider Number, and variables track financial performance, ownership changes, and operational efficiency before and after PE acquisition.

This comprehensive dataset enables a detailed analysis of how private equity ownership affects hospital performance, including changes in operational efficiency, profitability, and patient outcomes.